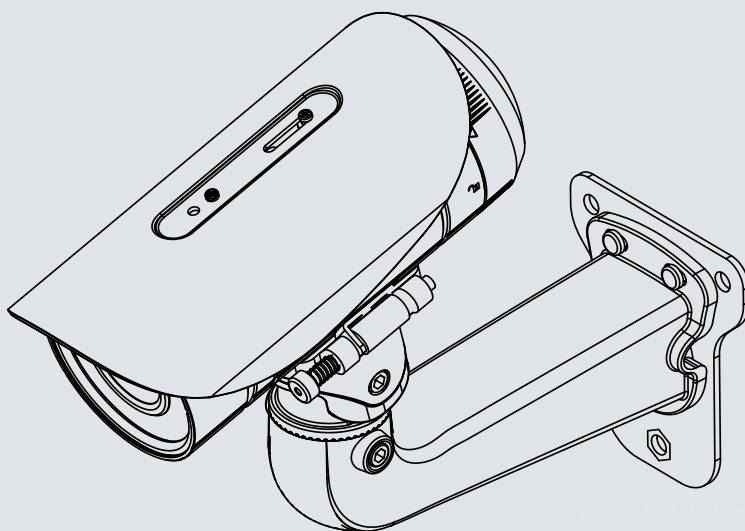




# IP8355EH / IP8365EH Bullet Network Camera User's Manual

1.3 / 2MP • 30M IR • Smart Focus System • IP67 •  
Cable Management



Rev. 1.0

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# Overview

VIVOTEK IP8355EH is a professional outdoor dome network camera offering 30 fps @ 1.3-Megapixel resolutions with superb image quality.

The IP8365EH provides 30 fps @ 2-Megapixel resolution with superb image quality.

Featuring the new improved Wide Dynamic Range Technology WDR Pro II (WDR Pro for IP8365EH), it provides extreme visibility in extremely dark & light environments with 4-shutter capture method. Combined with 3D Noise Reduction Technology, which enables the IP8355EH to capture clear, polished video under low-light conditions and reduce bandwidth from sensor noise, users can identify an increased level of image detail in extremely bright as well as dark environments.

Additionally, as a professional day/night camera, the camera adopts a Smart IR technology which prevents overexposure and provides noise reduction to adjust the IR lighting intensity instantaneously based on the changes of light in the ambient environment.

To provide top-notch image quality, the camera also comes with a P-iris lens, which controls the iris with extreme precision with its built-in stepper motor. By using software controls, the lens maintains the iris opening at an optimal level at all times, resulting in superior sharpness and depth of field as well as image quality. Furthermore, for installers, properly adjusting the focus of a megapixel network camera can be difficult due to the level of image detail. Therefore, the camera is also designed with VIVOTEK's Smart Focus System to make installation and adjustment easier by using remote focus and zoom adjustment.

The camera's IP67-rated housing is designed to protect the camera body from being immersed in the water, even against the immersion at the depth of at least 1m. Additionally, the wide temperature range further enhances the camera performance and reliability in extremely cold and hot weather.

## Revision History

- Rev. 1.0: Initial release

## Read Before Use

The use of surveillance devices may be prohibited by law in your country. The Network Camera is not only a high-performance web-ready camera but can also be part of a flexible surveillance system. It is the user's responsibility to ensure that the operation of such devices is legal before installing this unit for its intended use.

It is important to first verify that all contents received are complete according to the Package Contents listed below. Take note of the warnings in the Quick Installation Guide before the Network Camera is installed; then carefully read and follow the instructions in the Installation chapter to avoid damage due to faulty assembly and installation. This also ensures the product is used properly as intended.

The Network Camera is a network device and its use should be straightforward for those who have basic networking knowledge. It is designed for various applications including video sharing, general security/surveillance, etc. The Configuration chapter suggests ways to best utilize the Network Camera and ensure proper operations. For creative and professional developers, the URL Commands of the Network Camera section serves as a helpful reference to customizing existing homepages or integrating with the current web server.

## 1. Package Contents

- IP8355EH or IP8365EH
- Sun Shield / Wrench / RJ45 Female / Female Coupler / Double-sided Tape / Screws
- Wall mount bracket (w/ screws and anchors)
- Waterproof Connector for RJ45 Ethernet Enclosure
- Waterproof Connector (for backup use)
- Alignment Sticker / Desiccant Bag
- Software CD
- Quick Installation Guide

## Symbols and Statements in this Document



**INFORMATION:** provides important messages or advices that might help prevent inconvenient or problem situations.



**NOTE:** Notices provide guidance or advices that are related to the functional integrity of the machine.



**Tips:** Tips are useful information that helps enhance or facilitate an installation, function, or process.

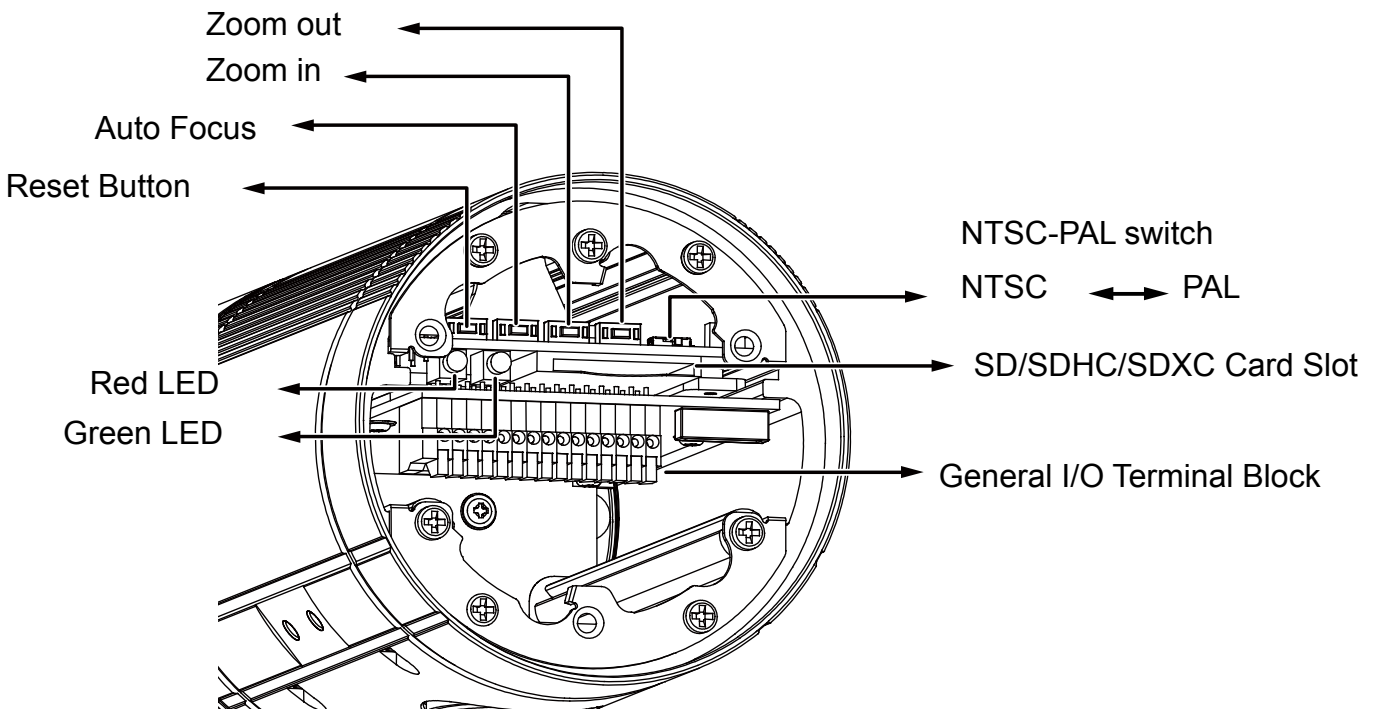
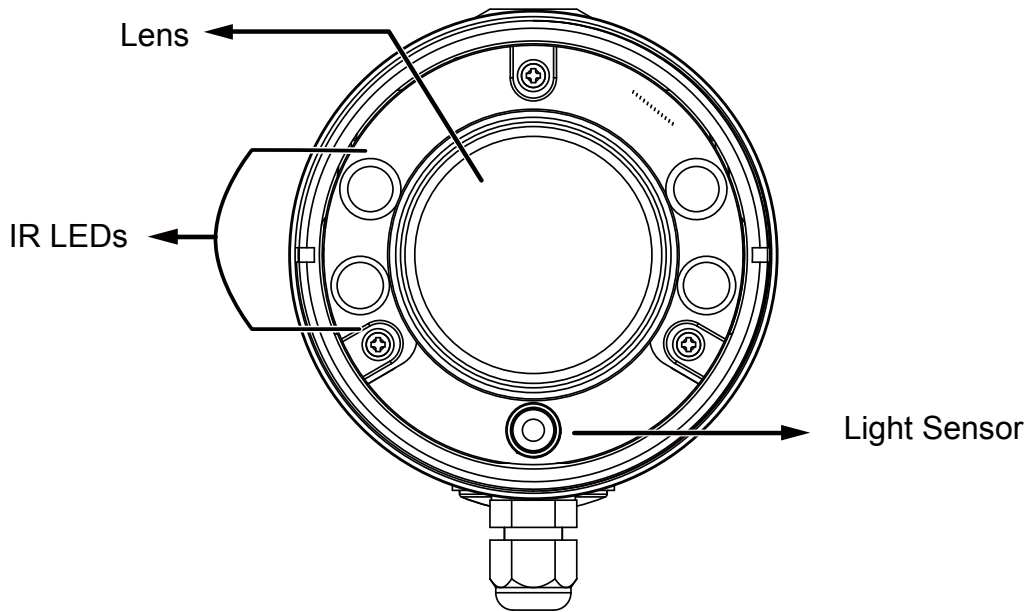


**WARNING! or IMPORTANT!:** These statements indicate situations that can be dangerous or hazardous to the machine or you.



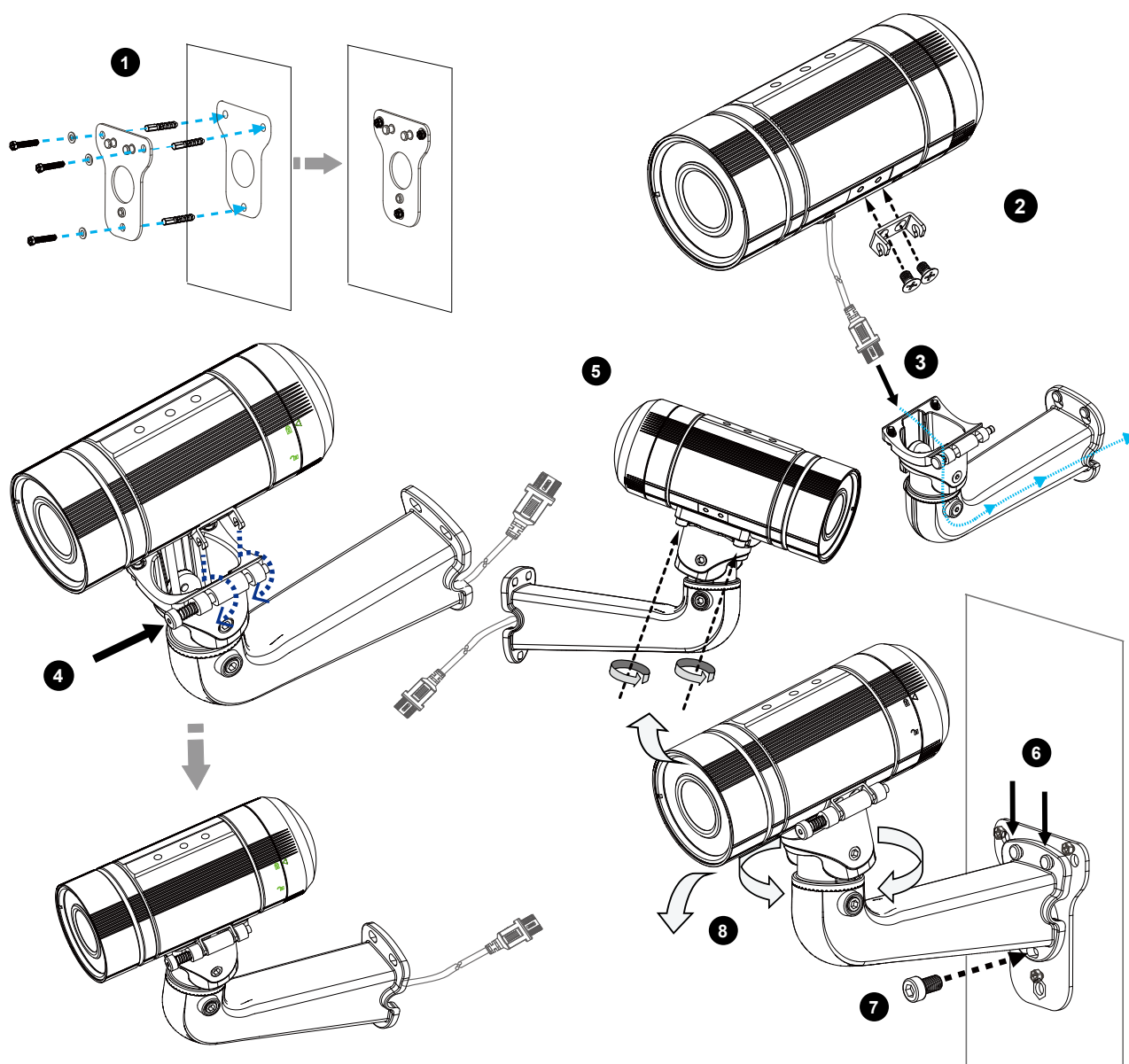
**Electrical Hazard:** This statement appears when high voltage electrical hazards might occur to an operator.

## 2. Physical Description



### 3. Hardware Installation

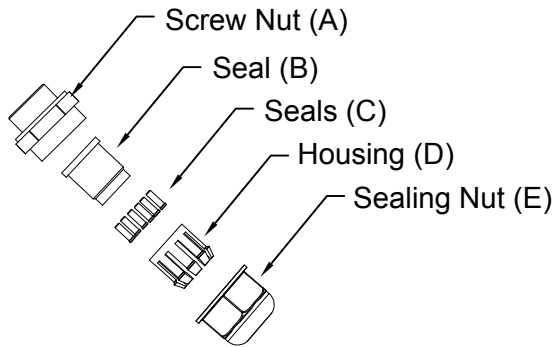
1. Attach the alignment sticker to the wall. Drill four holes into the wall. Then hammer the supplied plastic anchors into the holes and secure the plate with supplied screws.
2. Fix the intersection bracket to the side of the Network Camera with two screws.
3. Feed the RJ45 cable through the front opening of the wall mount bracket. (If you want to use external devices such as sensors and alarms, please refer to the assembling steps on the next page.)
4. Push the spring mortise and hook the bracket onto the groove of the wall mount bracket.
5. Secure the two screws on the other side of the wall mount bracket.
6. Hang the wall mount bracket to the mounting plate.
7. Fix the wall mount bracket with the supplied screw.
8. Adjust the angle of the wall mount bracket to aim at the shooting area.



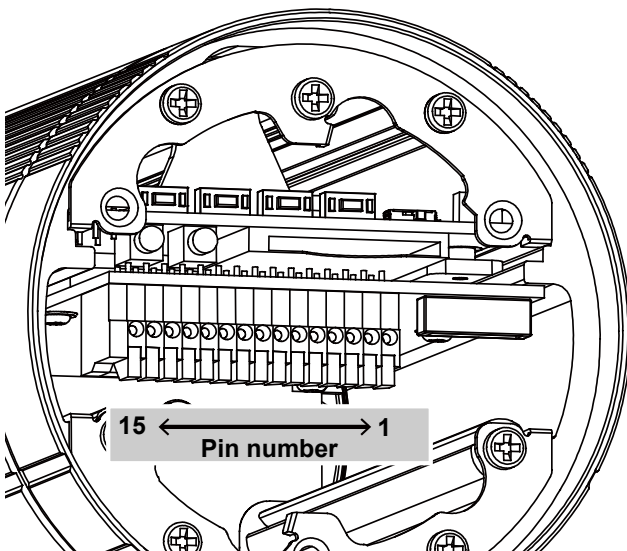
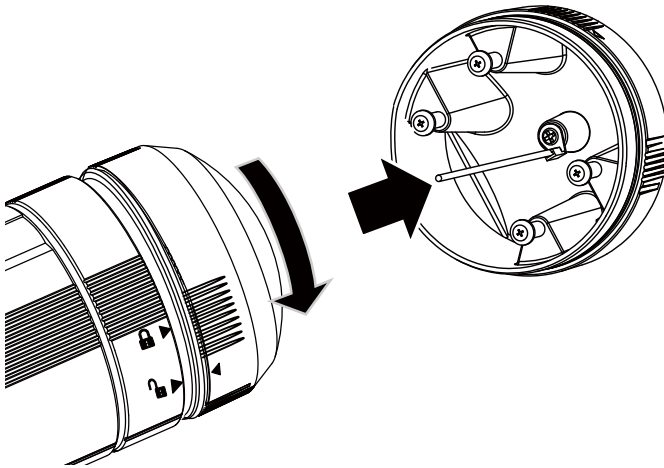
## 4. Cabling Assembly

### Waterproof Connector

#### ● Components of the Waterproof Connector

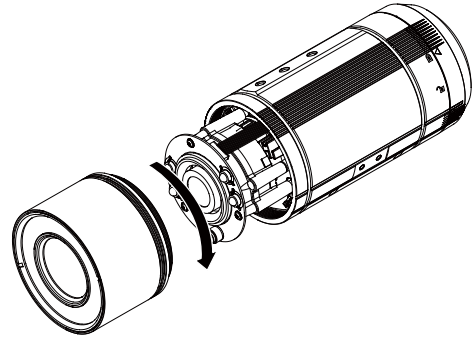


#### ● Pin Definitions



#### IMPORTANT:

If you should need to open the front cover, make sure you tighten it up later so that the camera can be waterproof.



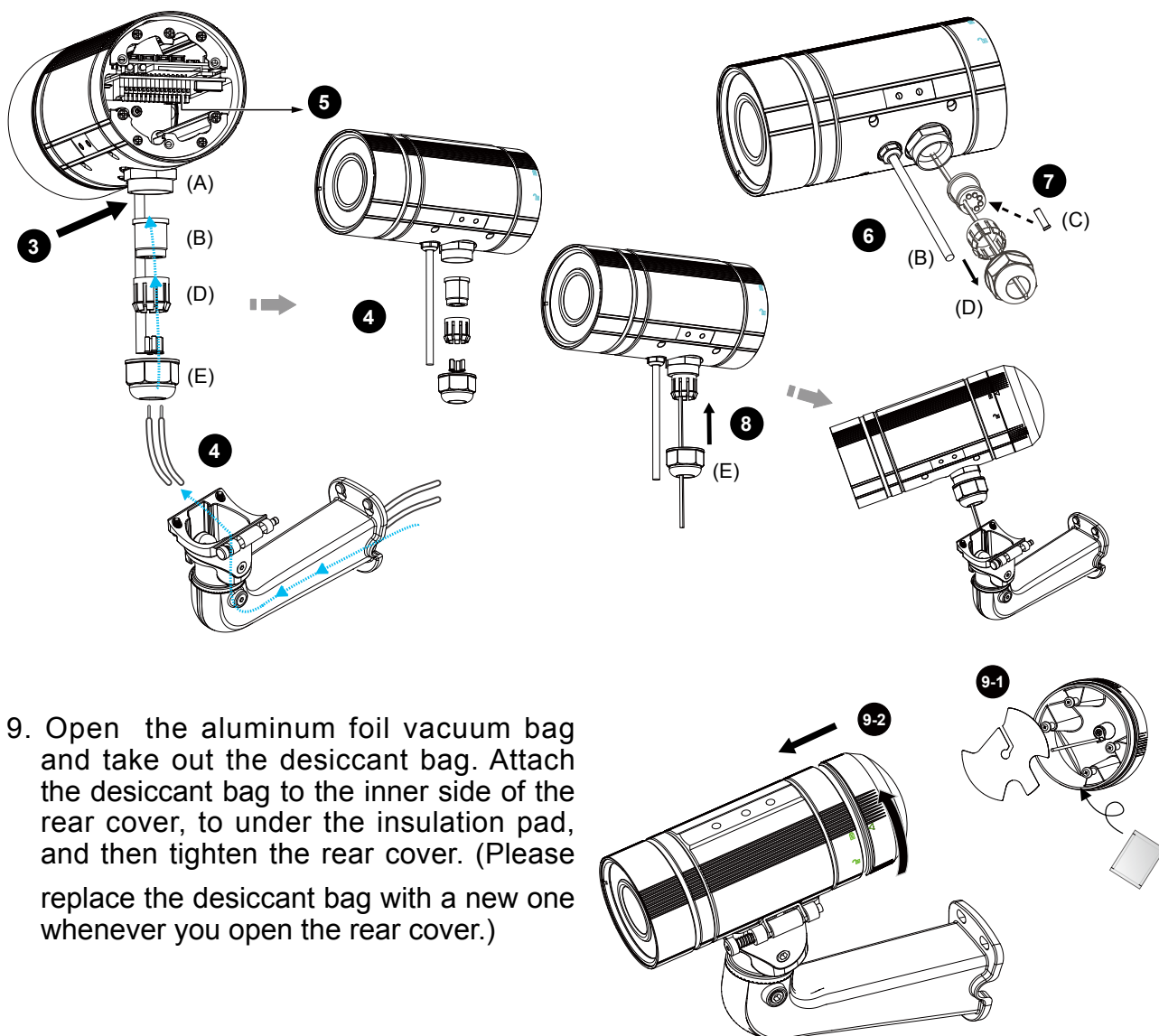
#### Pin Definitions

|    |           |
|----|-----------|
| 1  | AC 24V IN |
| 2  | AC 24V IN |
| 3  | DC12V+ IN |
| 4  | DC12V- IN |
| 5  | DI-       |
| 6  | DI+       |
| 7  | DO-       |
| 8  | DO+       |
| 9  | N/C       |
| 10 | N/C       |
| 11 | EXT_MIC   |
| 12 | Audio Out |
| 13 | Audio GND |
| 14 | TV Out    |
| 15 | GND       |



## ● Assembling Steps

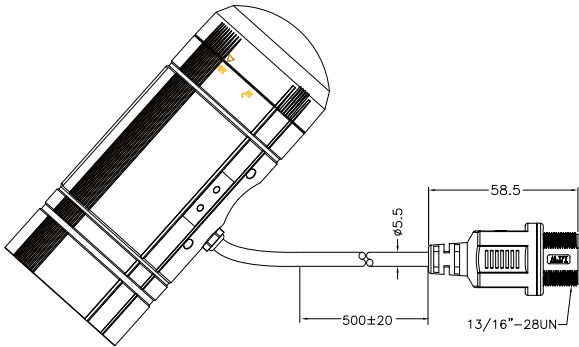
1. Disassemble the components of the waterproof connector into part (A) ~ (E) as shown above.
2. Open the rear cover of the Network Camera.
3. Remove the rubber stopper from the bottom of the Network Camera and secure the screw nut (A) tightly.
4. You may choose to use AC24V or DC12V inputs as power source, please feed the power lines through the wall mount bracket and the waterproof connector (E --> D --> B --> A) as illustrated below. Pass power lines through the rubber seal (B) and then connect the power lines to the terminal block.
5. If you have external devices such as sensors and alarms, feed the cables through the wall mount bracket and the waterproof connector (E --> D --> B --> A) as the illustration shown below. Then refer to the pin definition to connect them to the general I/O terminal block. Note: The recommended cable gauge is 2.0 ~ 2.8 mm.
6. Push the seal (B) into the housing (D).
7. Insert the seals (C) into the empty holes on the seal (B) to avoid moisture.
8. Secure the sealing nut (E) tightly.



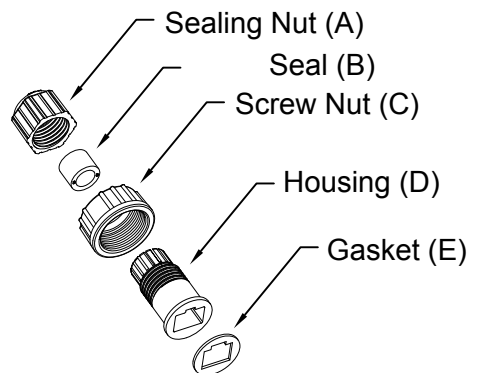
9. Open the aluminum foil vacuum bag and take out the desiccant bag. Attach the desiccant bag to the inner side of the rear cover, to under the insulation pad, and then tighten the rear cover. (Please replace the desiccant bag with a new one whenever you open the rear cover.)

## RJ45 Cable Connector

### ● RJ45 Cable Dimension (unit: mm)

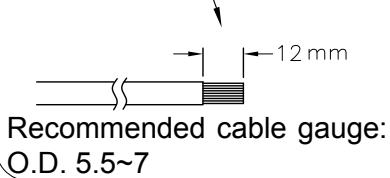


### ● Components of the Waterproof Connector

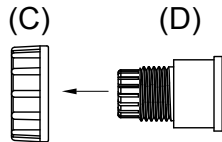


### ● Assembling Steps

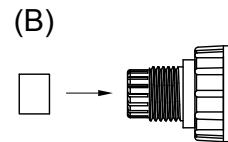
- 1** Prepare an Ethernet cable and strip part of the sheath.



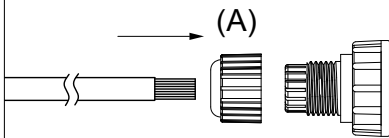
- 2** Insert the housing into the screw nut.



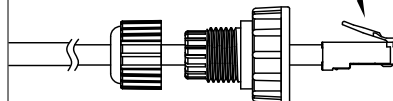
- 3** Insert the seal into the housing.



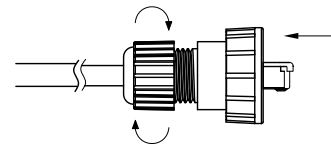
- 4** Insert the stripped Ethernet cable through the sealing nut and the housing.



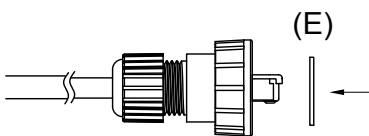
- 5** Clamp the cable with an RJ45 plug.



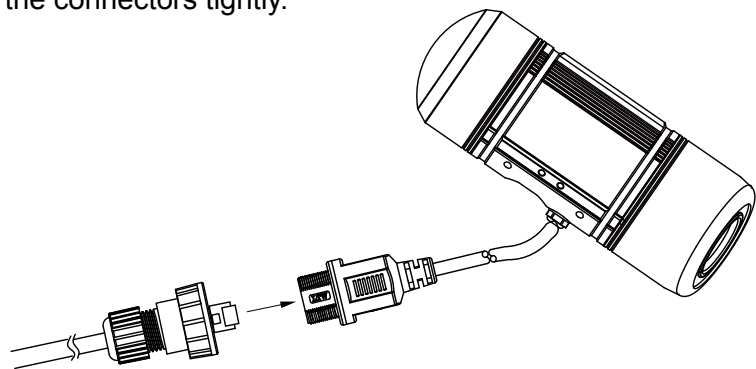
- 6** Push the RJ45 plug into the housing, then secure the sealing nut tightly.



- 7** Attach the gasket to the front of the housing.



- 8** Connect the Ethernet cable to the RJ45 cable and secure the connectors tightly.

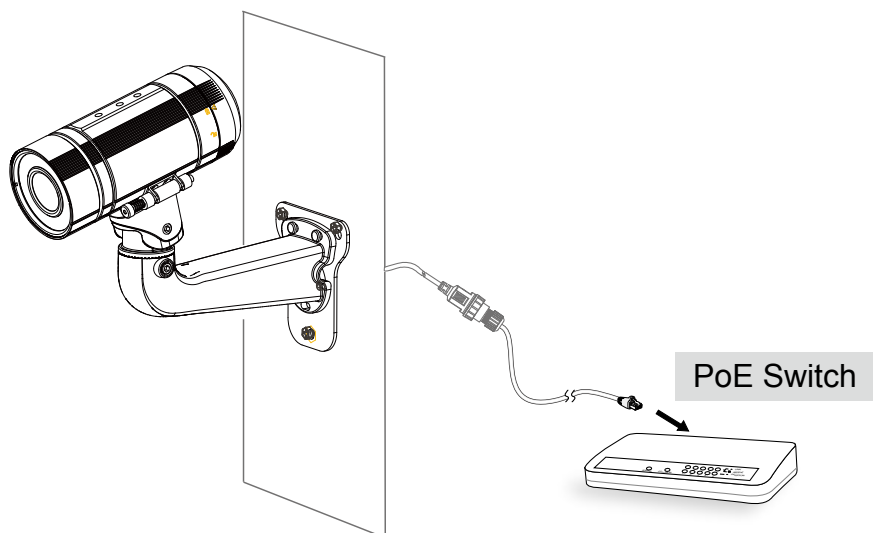


## 5. Network Deployment

### Power over Ethernet (PoE)

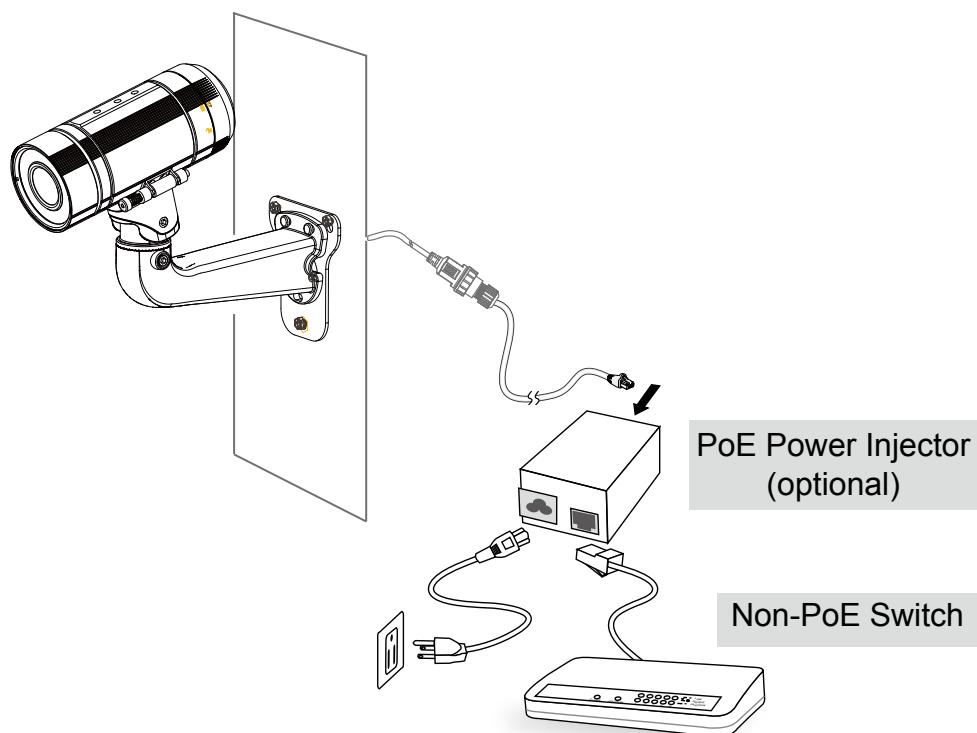
#### ● When using a PoE-enabled switch

The Network Camera is PoE-compliant, allowing transmission of power and data via a single Ethernet cable. Follow the below illustration to connect the Network Camera to a PoE-enabled switch via Ethernet cable.



#### ● When using a non-PoE switch

Use a PoE power injector (optional) to connect between the Network Camera and a non-PoE switch.



## Status LED

The LED indicates the status of the Network Camera.

| Item | LED status  | Description                 |
|------|---|-----------------------------|
| 1    | Green and Red lit for once, and then turn steady red                | Power on and system booting |
|      | Red LED off   | Power off                   |
| 2    | Steady Red and Green blinking every 1 sec.                          | Network normal (heartbeat)  |
|      | Steady Red and Green LED is off                                     | Network failed              |
| 3    | Red blinking every 0.15 sec., and Green LED blinking every 1 sec.   | Upgrading firmware          |
| 4    | Red blinking every 0.15 sec. and Green LED blinking every 0.15 sec. | Restoring default           |

## General I/O Terminal Block

This Network Camera provides a general I/O terminal block which is used to connect external input / output devices. The pin definitions are described below. The 24V AC and DC 12V can be used as an alternate power source.



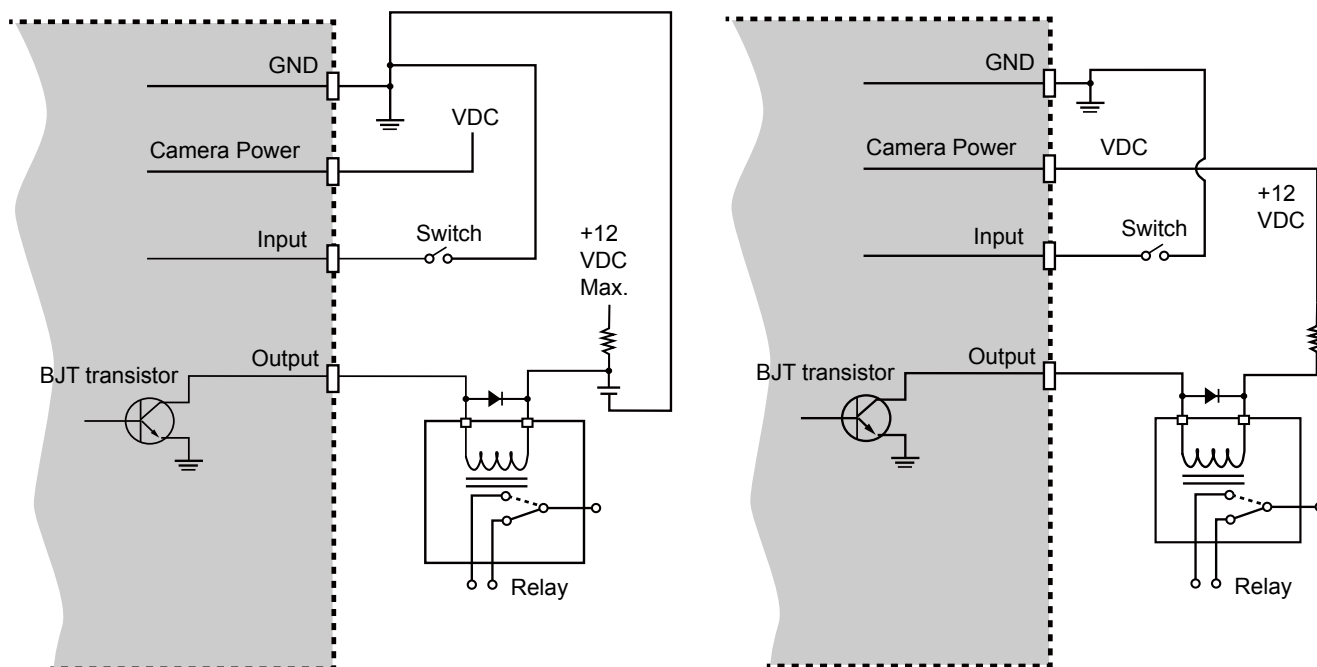
### NOTE:

The max. load for power output pin 8, 12V DO, is 50mA.

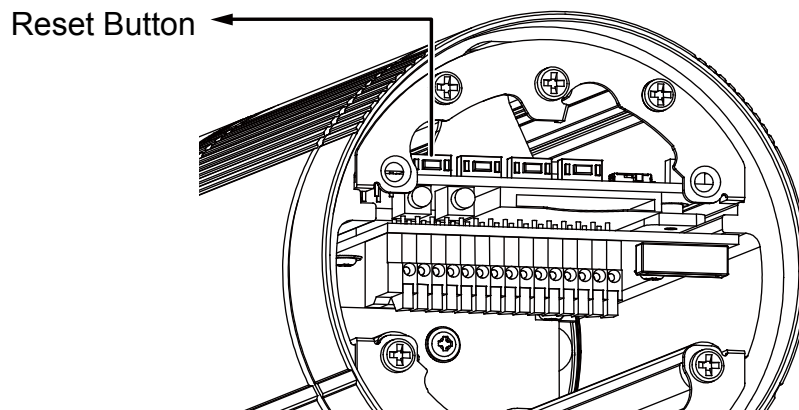
|    |           |
|----|-----------|
| 1  | AC 24V IN |
| 2  | AC 24V IN |
| 3  | DC12V+ IN |
| 4  | DC12V- IN |
| 5  | DI-       |
| 6  | DI+       |
| 7  | DO-       |
| 8  | DO+       |
| 9  | N/C       |
| 10 | N/C       |
| 11 | EXT_MIC   |
| 12 | Audio Out |
| 13 | Audio GND |
| 14 | TV Out    |
| 15 | GND       |

## DI/DO Diagram

Please refer to the following illustration for the connection method.



## Hardware Reset



The reset button is used to reset the system or restore the factory default settings. Sometimes resetting the system can return the camera to normal operation. If the system problems remain after reset, restore the factory settings and install again.

**Reset:** Press and release the recessed reset button with a straightened paper clip. Wait for the Network Camera to reboot.

**Restore:** Press and hold the recessed reset button until the status LED rapidly blinks. Note that all settings will be restored to factory default. Upon successful restore, the status LED will blink green and red during normal operation.

## Micro SD/SDHC/SDXC Card Capacity

This network camera is compliant with **Micro SD/SDHC/SDXC 8GB, 16GB, or 64GB** and other preceding standard SD cards.



### WARNING:

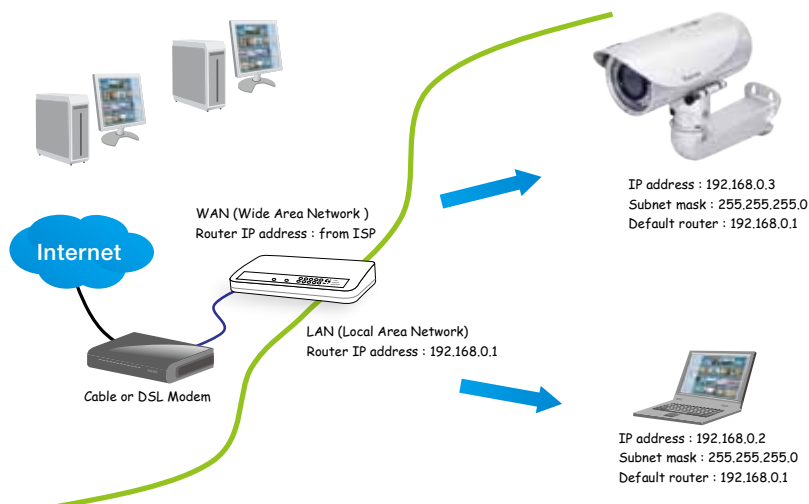
You will find a dessicant bag attached to the dome cover. Replace the dessicant bag included in the camera with the one shipped within the accessory bag.

---

## Internet connection via a router

Before setting up the Network Camera over the Internet, make sure you have a router and follow the steps below.

1. Connect your Network Camera behind a router, the Internet environment is illustrated below. Regarding how to obtain your IP address, please refer to Software Installation on page 17 for details.



2. In this case, if the Local Area Network (LAN) IP address of your Network Camera is 192.168.0.3, please forward the following ports for the Network Camera on the router.

- HTTP port: default is 80
- RTSP port: default is 554
- RTP port for audio: default is 5558
- RTCP port for audio: default is 5559
- RTP port for video: default is 5556
- RTCP port for video: default is 5557

If you have changed the port numbers on the Network page, please open the ports accordingly on your router. For information on how to forward ports on the router, please refer to your router's user's manual.

3. Find out the public IP address of your router provided by your ISP (Internet Service Provider). Use the public IP and the secondary HTTP port to access the Network Camera from the Internet. Please refer to Network Type on page 63 for details.

For example, your router and IP settings may look like this:

| Device              | IP Address: internal port | IP Address: External Port (Mapped port on the router) |
|---------------------|---------------------------|---|
| Public IP of router | 122.146.57.120            |   |
| LAN IP of router    | 192.168.2.1               |   |
| Camera 1            | 192.168.2.10:80           | 122.146.57.120:8000                                   |
| Camera 2            | 192.168.2.11:80           | 122.146.57.120:8001                                   |
| ...                 | ...                       | ...   |

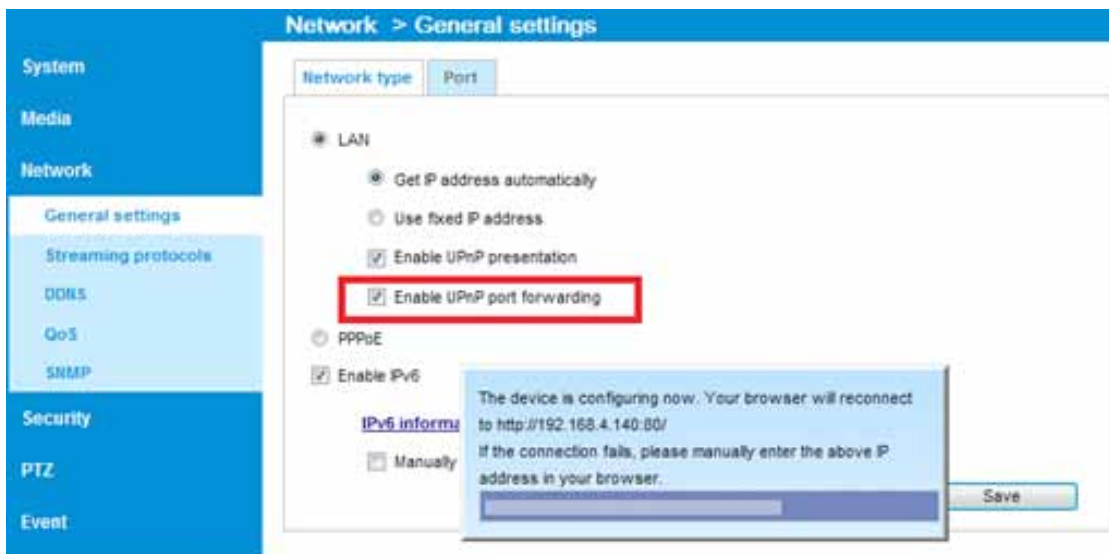
Configure the router, virtual server or firewall, so that the router can forward any data coming into a preconfigured port number to a network camera on the private network, and allow data from the camera to be transmitted to the outside of the network over the same path.

| From                | Forward to      |
|---------------------|-----------------|
| 122.146.57.120:8000 | 192.168.2.10:80 |
| 122.146.57.120:8001 | 192.168.2.11:80 |
| ...                 | ...             |

When properly configured, you can access a camera behind the router using the HTTP request as follows: <http://122.146.57.120:8000>

If you change the port numbers on the Network configuration page, please open the ports accordingly on your router. For example, you can open a management session with your router to configure access through the router to the camera within your local network. Please consult your network administrator for router configuration if you have troubles with the configuration.

For more information with network configuration options (such as that of streaming ports), please refer to Configuration > Network Settings. VIVOTEK also provides the automatic port forwarding feature as an NAT traversal function with the precondition that your router must support the UPnP port forwarding feature.



**Internet connection with static IP**

Choose this connection type if you are required to use a static IP for the Network Camera. Please refer to LAN setting on page 63 for details.

**Internet connection via PPPoE (Point-to-Point over Ethernet)**

Choose this connection type if you are connected to the Internet via a DSL Line. Please refer to PPPoE on page 64 for details.



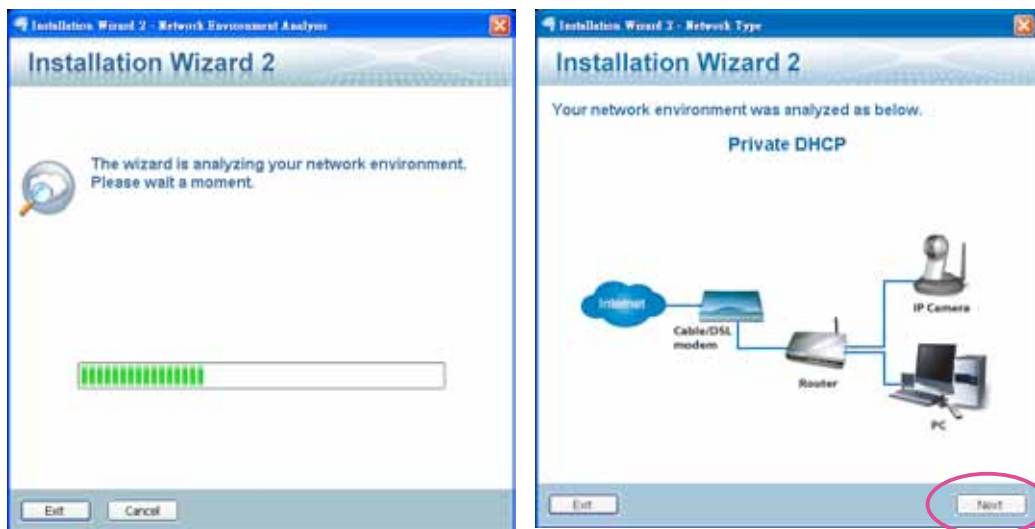
## Software Installation

Installation Wizard 2 (IW2), free-bundled software included on the product CD, helps you set up your Network Camera on the LAN.

1. Install IW2 under the Software Utility directory from the software CD.  
Double-click the IW2 shortcut on your desktop to launch the program.



2. The program will conduct an analysis of your network environment.  
After your network environment is analyzed, please click **Next** to continue the program.



3. The program will search for all VIVOTEK network devices on the same LAN.
4. After a brief search, the installer window will prompt. Click on the MAC and model name that matches the one printed on the product label. You can then double-click on the address to open a management session with the Network Camera.



## Ready to Use

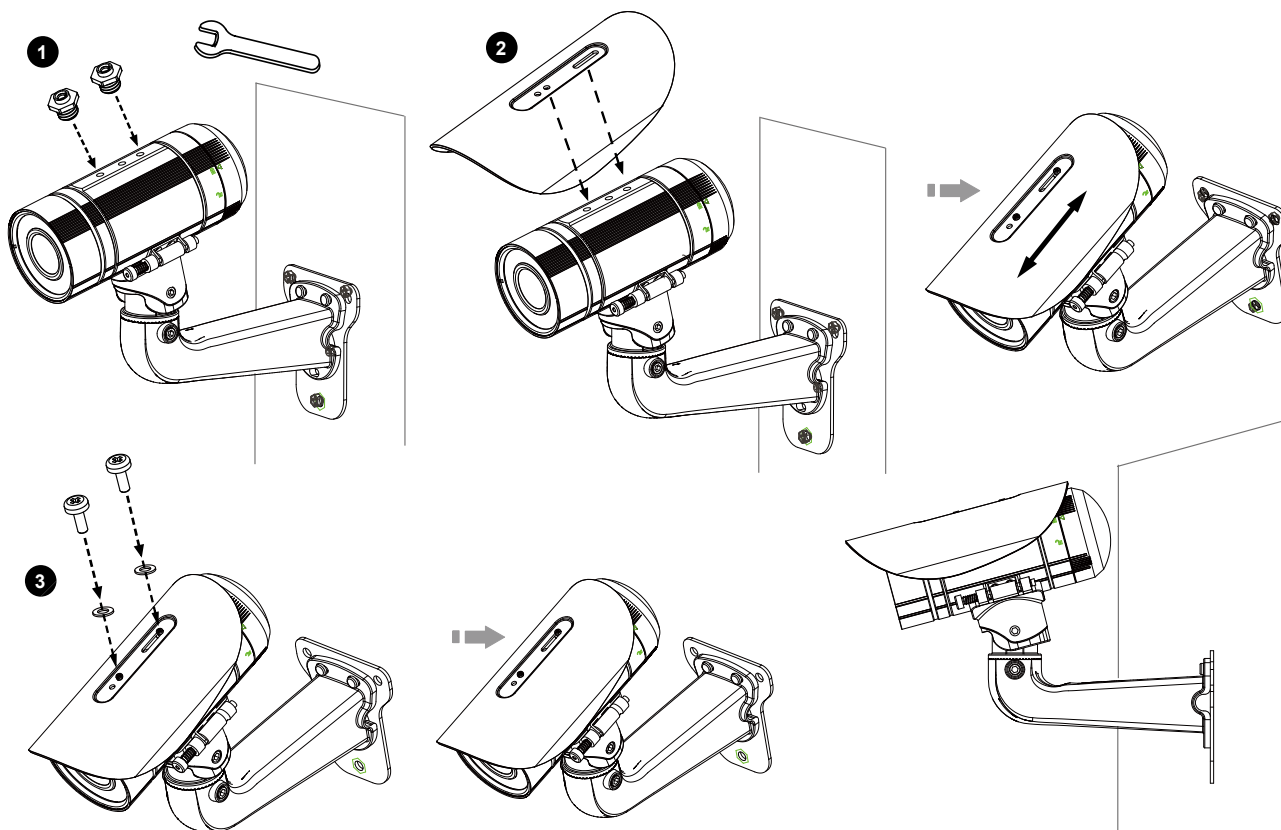
1. A browser session with the Network Camera should prompt as shown below.
2. You should be able to see live video from your camera. You may also install the 32-channel recording software from the software CD in a deployment consisting of multiple cameras. For its installation details, please refer to its related documents.



**NOTE:**

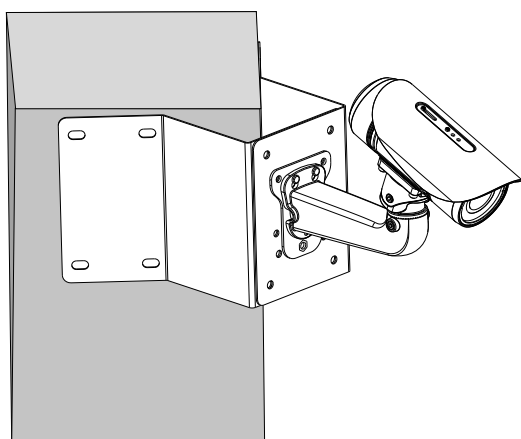
If you want to use the supplied sun shield for outdoor environments, please follow the steps below to install:

1. Tighten the supplied two hex couplers.
2. Attach the supplied sun shield to the Network Camera and slide it to the desired position.
3. Fix the sun shield with the supplied two screws.

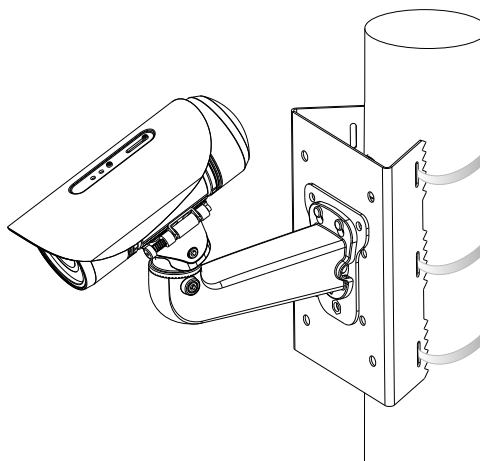
**Accessories**

VIVOTEK also provides other accessories for versatile applications as the following illustrations. Please visit VIVOTEK's official website for more purchase information.

Corner Mount Bracket



Pole Mount Bracket



# Accessing the Network Camera

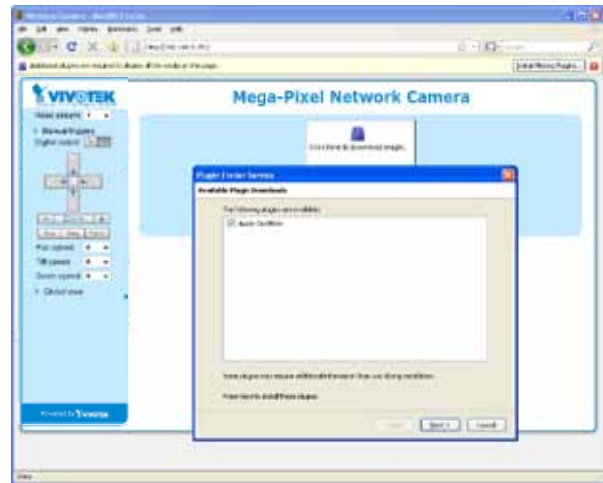
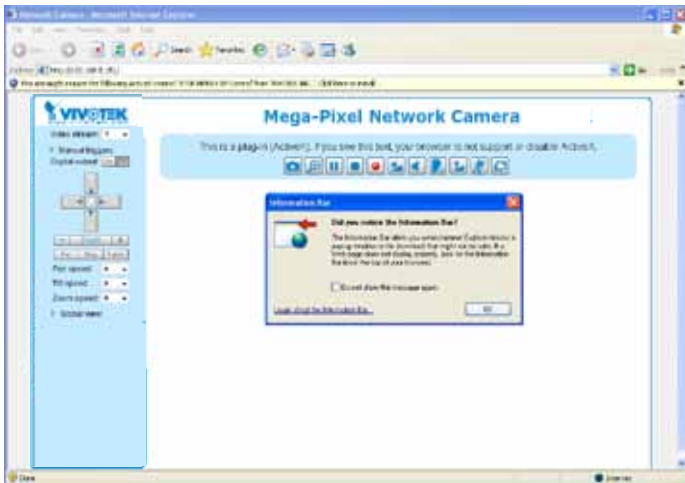
This chapter explains how to access the Network Camera through web browsers, RTSP players, 3GPP-compatible mobile devices, and VIVOTEK recording software.

## Using Web Browsers

Use Installation Wizard 2 (IW2) to access the Network Cameras on LAN.

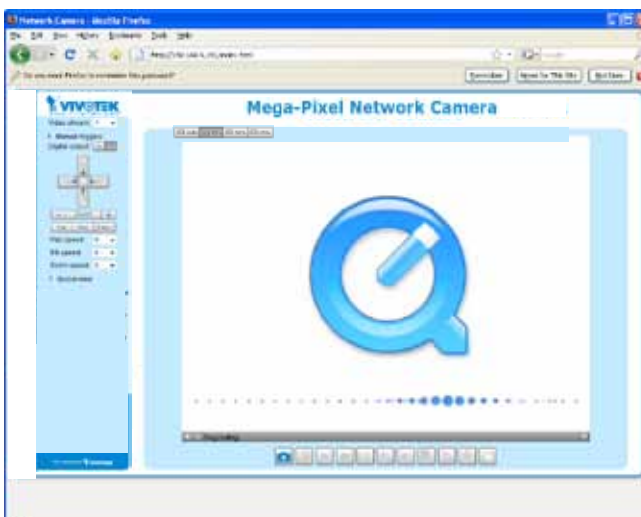
If your network environment is not a LAN, follow these steps to access the Network Camera:

1. Launch your web browser (ex. Microsoft® Internet Explorer, Mozilla Firefox, or Google Chrome).
2. Enter the IP address of the Network Camera in the address field. Press **Enter**.
3. The live video will be displayed in your web browser.
4. If it is the first time installing the VIVOTEK network camera, an information bar will pop up as shown below. Follow the instructions to install the required plug-in on your computer.



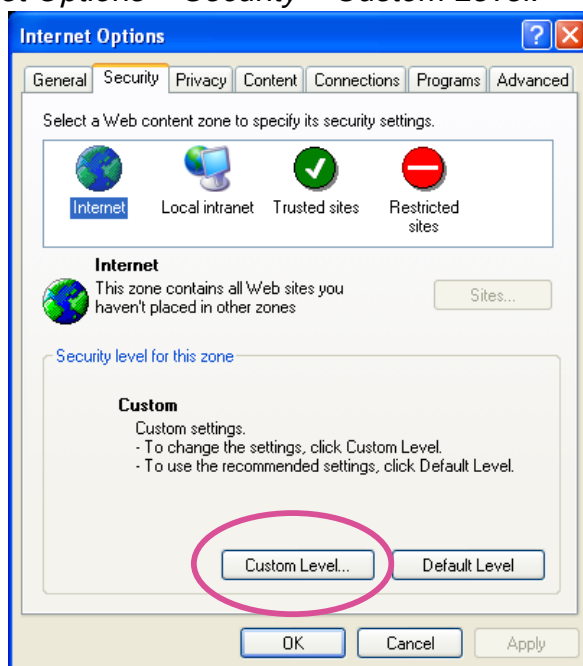
 **NOTE:**

- For Mozilla Firefox or Netscape users, your browser will use Quick Time to stream the live video. If you don't have Quick Time on your computer, please download it first, then launch the web browser.

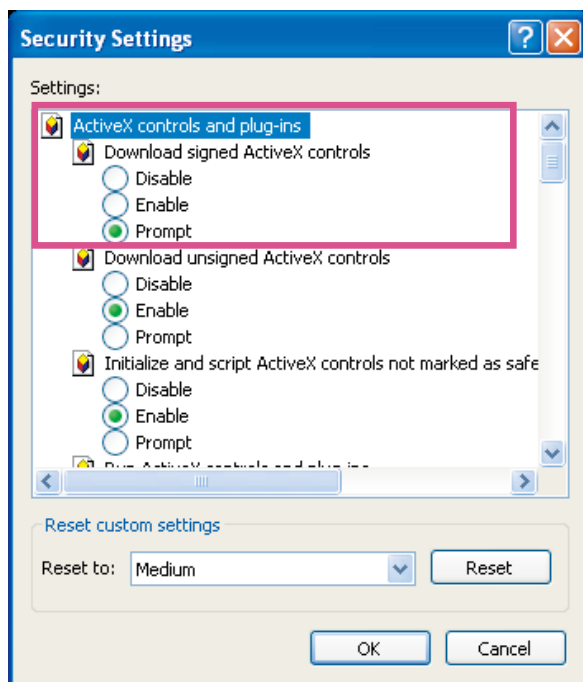


- ▶ *By default, the Network Camera is not password-protected. To prevent unauthorized access, it is highly recommended to set a password for the Network Camera. For more information about how to enable password protection, please refer to Security on page 81.*
- ▶ *If you see a dialog box indicating that your security settings prohibit running ActiveX® Controls, please enable the ActiveX® Controls for your browser.*

1. Choose **Tools > Internet Options > Security > Custom Level**.



2. Look for **Download signed ActiveX® controls**; select **Enable** or **Prompt**. Click **OK**.



3. Refresh your web browser, then install the ActiveX® control. Follow the instructions to complete installation.

**IMPORTANT:**

1. Currently the Network Camera utilizes 32-bit ActiveX plugin. You CAN NOT open a management/view session with the camera using a 64-bit IE browser.
2. If you encounter this problem, try execute the IEXPLORE.EXE program from C:\Windows\SysWOW64. A 32-bit version of IE browser will be installed.
3. On Windows 7, the 32-bit explorer browser can be accessed from here:  
[C:\Program Files \(x86\)\Internet Explorer\IEXPLORE.EXE](C:\Program Files (x86)\Internet Explorer\IEXPLORE.EXE)

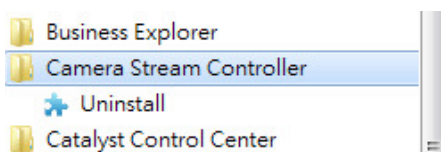
**NOTE:**

1. For a megapixel camera, it is recommended to use monitors of the 24" size or larger, and are capable of 1600x1200 or better resolutions.
2. Below are the defaults for Audio settings:  
 For cameras with built-in microphone: **Not Muted.**  
 For cameras without built-in microphone: **Muted.**

To receive audio input from external microphone, you may need to enable the audio input from **Media > Audio**. Refer to page 62 for more information.

**Tips:**

- The onscreen Java control can malfunction under the following situations:  
 A PC connects to different cameras that are using the same IP address (or the same camera running different firmware versions). Removing your browser cookies will solve this problem.
- In the event of plug-in compatibility issues, you may try to uninstall the plug-in that was previously installed.



## Using RTSP Players

To view the MPEG-4 streaming media using RTSP players, you can use one of the following players that support RTSP streaming.



Quick Time Player

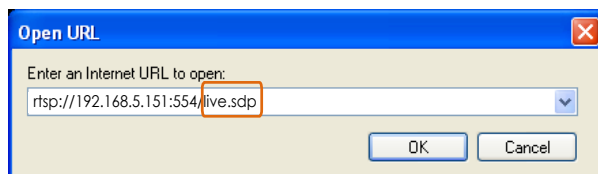


VLC Player

1. Launch the RTSP player.
2. Choose File > Open URL. A URL dialog box will pop up.
3. The address format is `rtsp://<ip address>:<rtsp port>/<RTSP streaming access name for stream #1, #2, #3, or #4>`

As most ISPs and players only allow RTSP streaming through port number 554, please set the RTSP port to 554. For more information, please refer to RTSP Streaming on page 72.

For example:



4. The live video will be displayed in your player.  
For more information on how to configure the RTSP access name, please refer to RTSP Streaming on page 72 for details.



## Using 3GPP-compatible Mobile Devices

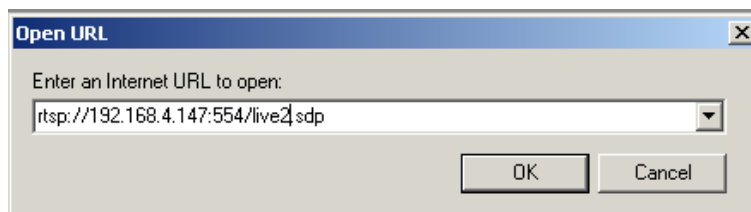
To view the streaming media through 3GPP-compatible mobile devices, make sure the Network Camera can be accessed over the Internet. For more information on how to set up the Network Camera over the Internet, please refer to Setup the Network Camera over the Internet on page 15.

To utilize this feature, please check the following settings on your Network Camera:

1. Because most players on 3GPP mobile phones do not support RTSP authentication, make sure the authentication mode of RTSP streaming is set to disable.  
For more information, please refer to RTSP Streaming on page 72.
2. As the the bandwidth on 3G networks is limited, you will not be able to use a large video size. Please set the video and audio streaming parameters as listed below.  
For more information, please refer to Stream settings on page 58.

|                                   |           |
|-----------------------------------|-----------|
| Video Mode                        | H.264     |
| Frame size                        | 176 x 144 |
| Maximum frame rate                | 5 fps     |
| Intra frame period                | 1S        |
| Video quality (Constant bit rate) | 40kbps    |
| Audio type (G.711)                | PCMU      |

3. As most ISPs and players only allow RTSP streaming through port number 554, please set the RTSP port to 554. For more information, please refer to RTSP Streaming on page 72.
4. Launch the player on the 3GPP-compatible mobile devices (e.g., VLC Player).
5. Type the following URL commands into the player.  
The address format is `rtsp://<public ip address of your camera>:<rtsp port>/<RTSP streaming access name for stream # with small frame size and frame rate>`.  
For example:





## Using VIVOTEK Recording Software

The product software CD also contains an ST-7501 recording software, allowing simultaneous monitoring and video recording for multiple Network Cameras. Please install the recording software; then launch the program to add the Network Camera to the Channel list. For detailed information about how to use the recording software, please refer to the user's manual of the software or download it from <http://www.vivotek.com>.



# Main Page

This chapter explains the layout of the main page. It is composed of the following sections: VIVOTEK INC. Logo, Host Name, Camera Control Area, Configuration Area, Menu, and Live Video Window.



## VIVOTEK INC. Logo

Click this logo to visit the VIVOTEK website.

## Host Name

The host name can be customized to fit your needs. For more information, please refer to System on page 36.

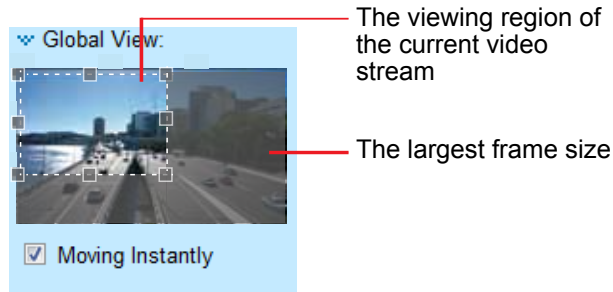
## Camera Control Area

**Video Stream:** This Network Camera supports multiple streams (stream #1 and #2) simultaneously. You can select either one for live viewing. For more information about multiple streams, please refer to page 58 for detailed information.

**Manual Trigger:** Click to enable/disable an event trigger manually. Please configure an event setting on Application page before enable this function. A total of 3 event settings can be configured. For more information about event setting, please refer to page 97. If you want to hide this item on the homepage, please go to **Configuration > System > Homepage Layout > General settings > Customized button** to deselect "show manual trigger button".

**Digital Output:** Click to turn the digital output device on or off.

**Global View:** Click on this item to display the Global View window. The Global View window contains a full view image (the largest frame size of the captured video) and a floating frame (the viewing region of the current video stream). The floating frame allows users to control the e-PTZ function (Electronic Pan/Tilt/Zoom). For more information about e-PTZ operation, please refer to E-PTZ Operation on page 94. For more information about how to set up the viewing region of the current video stream, please refer to page 60.



**PTZ Panel:** This Network Camera supports both “digital” (e-PTZ) and “mechanical” pan/tilt/zoom control. Please refer to PTZ settings on page 94 for detailed information.

## Configuration Area

**Client Settings:** Click this button to access the client setting page. For more information, please refer to Client Settings on page 31.

**Configuration:** Click this button to access the configuration page of the Network Camera. It is suggested that a password be applied to the Network Camera so that only the administrator can configure the Network Camera. For more information, please refer to Configuration on page 35.

**Language:** Click this button to choose a language for the user interface. Language options are available in: English, Deutsch, Español, Français, Italiano, 日本語, Português, 簡體中文, and 繁體中文. Please note that you can also change a language on the Configuration page; please refer to page 35.

## Hide Button

You can click the hide button to hide the control panel or display the control panel.

## Resize Buttons



Click the Auto button, the video cell will resize automatically to fit the monitor.

Click 100% is to display the original homepage size.

Click 50% is to resize the homepage to 50% of its original size.

Click 25% is to resize the homepage to 25% of its original size.

## Live Video Window

- The following window is displayed when the video mode is set to H.264 / MPEG-4:




**Video Title:** The video title can be configured. For more information, please refer to Video Settings on page 48.


**H.264 / MPEG-4 Protocol and Media Options:** The transmission protocol and media options for H.264 / MPEG-4 video streaming. For further configuration, please refer to Client Settings on page 31.

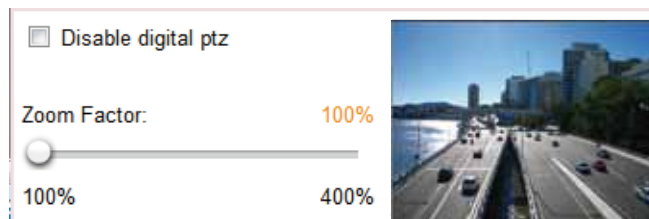
**Time:** Display the current time. For further configuration, please refer to Media > Image > Genral settings on page 48.



**Title and Time:** The video title and time can be stamped on the streaming video. For further configuration, please refer to Media > Image > General settings on page 48.



**Video and Audio Control Buttons:** Depending on the Network Camera model and Network Camera configuration, some buttons may not be available.



 **Snapshot:** Click this button to capture and save still images. The captured images will be displayed in a pop-up window. Right-click the image and choose **Save Picture As** to save it in JPEG (\*.jpg) or BMP (\*.bmp) format.



 **Digital Zoom:** Click and uncheck “Disable digital zoom” to enable the zoom operation. The navigation screen indicates the part of the image being magnified. To control the zoom level, drag the slider bar. To move to a different area you want to magnify, drag the navigation screen.







 **Pause:** Pause the transmission of the streaming media. The button becomes the  **Resume** button after clicking the Pause button.



 **Stop:** Stop the transmission of the streaming media. Click the  **Resume** button to continue transmission.




 **Start MP4 Recording:** Click this button to record video clips in MP4 file format to your computer. Press the  **Stop MP4 Recording** button to end recording. When you exit the web browser, video recording stops accordingly. To specify the storage destination and file name, please refer to MP4 Saving Options on page 32 for details.


 **Volume:** When the  **Mute** function is not activated, move the slider bar to adjust the volume on the local computer.

 **Mute:** Turn off the volume on the local computer. The button becomes the  **Audio On** button after clicking the Mute button.

 **Talk:** Click this button to talk to people around the Network Camera. Audio will project from the external speaker connected to the Network Camera. Click this button  again to end talking transmission.

 **Mic Volume:** When the  **Mute** function is not activated, move the slider bar to adjust the microphone volume on the local computer.

 **Mute:** Turn off the  **Mic volume** on the local computer. The button becomes the  **Mic On** button after clicking the Mute button.

 **Full Screen:** Click this button to switch to full screen mode. Press the “Esc” key to switch back to normal mode.

- The following window is displayed when the video mode is set to MJPEG:





**Video Title:** The video title can be configured. For more information, please refer to Media > Image on page 48.

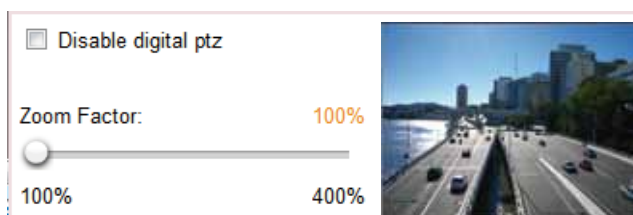
**Time:** Display the current time. For more information, please refer to Media > Image on page 48.



**Title and Time:** Video title and time can be stamped on the streaming video. For more information, please refer to Media > Image on page 48.


**Video and Audio Control Buttons:** Depending on the Network Camera model and Network Camera configuration, some buttons may not be available.

 **Snapshot:** Click this button to capture and save still images. The captured images will be displayed in a pop-up window. Right-click the image and choose **Save Picture As** to save it in JPEG (\*.jpg) or BMP (\*.bmp) format.

 **Digital Zoom:** Click and uncheck “Disable digital zoom” to enable the zoom operation. The navigation screen indicates the part of the image being magnified. To control the zoom level, drag the slider bar. To move to a different area you want to magnify, drag the navigation screen.



 **Start MP4 Recording:** Click this button to record video clips in MP4 file format to your computer. Press the  Stop MP4 Recording button to end recording. When you exit the web browser, video recording stops accordingly. To specify the storage destination and file name, please refer to MP4 Saving Options on page 32 for details.

 **Full Screen:** Click this button to switch to full screen mode. Press the “Esc” key to switch back to normal mode.

# Client Settings

This chapter explains how to select the stream transmission mode and saving options on the local computer. When completed with the settings on this page, click **Save** on the page bottom to enable the settings.

## H.264 Media Options

H.264 Media Options

Video and Audio

Video Only

Audio Only

Select to stream video or audio data or both. This is enabled only when the video mode is set to H.264 or MPEG-4.

## H.264 Protocol Options

H.264 Protocol Options

UDP Unicast

UDP Multicast

TCP

HTTP

Depending on your network environment, there are four transmission modes of H.264 or MPEG-4 streaming:

**UDP unicast:** This protocol allows for more real-time audio and video streams. However, network packets may be lost due to network burst traffic and images may be broken. Activate UDP connection when occasions require time-sensitive responses and the video quality is less important. Note that each unicast client connecting to the server takes up additional bandwidth and the Network Camera allows up to ten simultaneous accesses.

**UDP multicast:** This protocol allows multicast-enabled routers to forward network packets to all clients requesting streaming media. This helps to reduce the network transmission load of the Network Camera while serving multiple clients at the same time. Note that to utilize this feature, the Network Camera must be configured to enable multicast streaming at the same time. For more information, please refer to RTSP Streaming on page 72.

**TCP:** This protocol guarantees the complete delivery of streaming data and thus provides better video quality. The downside of this protocol is that its real-time effect is not as good as that of the UDP protocol.

**HTTP:** This protocol allows the same quality as TCP protocol without needing to open specific ports for streaming under some network environments. Users inside a firewall can utilize this protocol to allow streaming data through.

## Two way audio

**Two way audio**

Half-duplex  
 Full-duplex

Half duplex: Audio is transmitted from one direction at a time, e.g., from a PC holding a web console with the camera.

Full duplex: Audio is transmitted in both directions simultaneously.


## MP4 Saving Options

**MP4 saving options**

Folder:  

File name prefix:

Add date and time suffix to file name

Users can record live video as they are watching it by clicking  Start MP4 Recording on the main page. Here, you can specify the storage destination and file name.

Folder: Specify a storage destination for the recorded video files.

File name prefix: Enter the text that will be appended to the front of the video file name.

Add date and time suffix to the file name: Select this option to append the date and time to the end of the file name.



## Local Streaming Buffer Time

**Local streaming buffer time**

Millisecond

In a busy network, fluctuations in available bandwidth can occur. Video streaming may lag and may not proceed very smoothly. If you enable this option, video streams from the camera will be temporarily stored on the computer's cache memory for a configurable period of time (seconds or milliseconds) before being played on a web session. This will help you see the streaming more smoothly. If you enter 3000 Millisecond, the streaming will delay for 3 seconds.



## Joystick Settings

**Joystick settings**

Selected joystick: CH PRODUCTS IP DESKTOP CONTROLLER ▼

Calibrate      Configure buttons

Save

### Enable Joystick

Connect to the USB plug of the joystick to a USB port on your management computer. Supported by the plug-in in the main page (Microsoft's DirectX), once the plug-in in the main page is loaded, it will automatically detect if there is any joystick on the computer. The joystick should work properly without installing any other driver or software.

Then you can begin to configure the joystick settings of connected devices. Please follow the instructions below to enable joystick settings.

1. Right-click on a live view window. Select Joystick Settings. If your joystick is working properly, it will be displayed on the drop-down list.
2. Select the joystick you want to configure. Check **Enable Joystick**, then click **Configure Buttons** to open Buttons configuration window.



### NOTE:

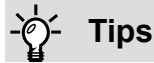
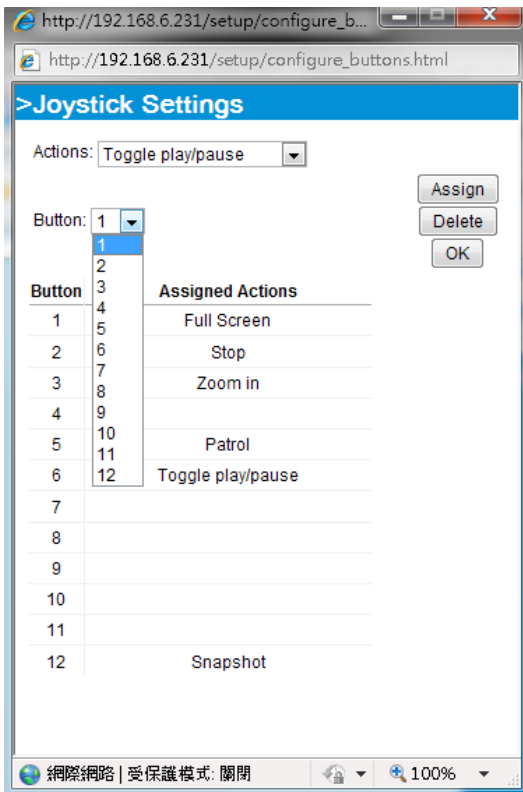
- If you want to assign Preset actions to your joystick, the preset locations should be configured in advance in the Configuration > PTZ page.
- If your joystick is not working properly, it may need to be calibrated. Click the **Calibrate** button to open the Game Controllers window located in Microsoft Windows control panel and follow the instructions for trouble shooting.
- The joystick will appear in the **Game Controllers** list in the Windows Control panel. If you want to check out for your devices, go to the following page: Start -> Control Panel -> Game Controllers.



## Buttons Configuration

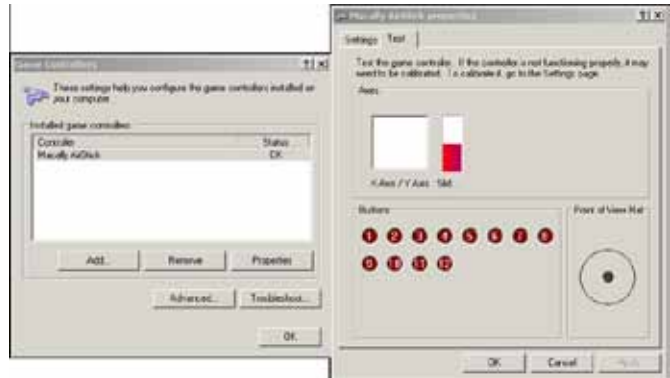
Click the **Configure Buttons** button, a window will prompt as shown below. Please follow the steps below to configure your joystick buttons:

1. Select a button number from the Button # pull-down menu.



### Tips

If you are not sure of the locations of each button, use the **Properties** window in the **Game Controllers** utility.



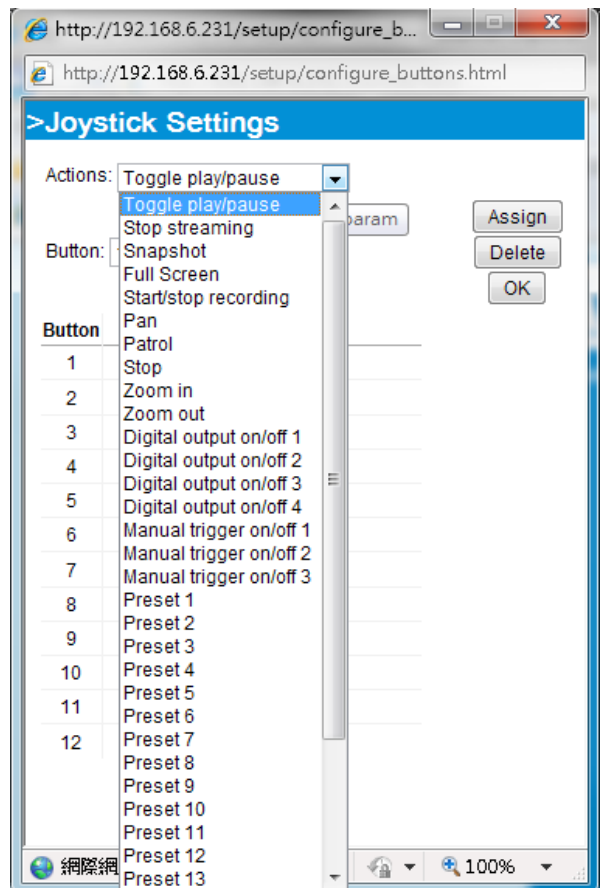
2. Select a corresponding action, such as Patrol or Preset#.

3. Click the **Assign** button to assign an action to the button. You can delete an association by selecting a button number, and then click the **Delete** button.

Repeat the process until you are done with the configuration of all preferred actions.

The buttons you define should appear on the button list accordingly.

4. Please remember to click the **Save** button on the Client settings page to preserve your settings.



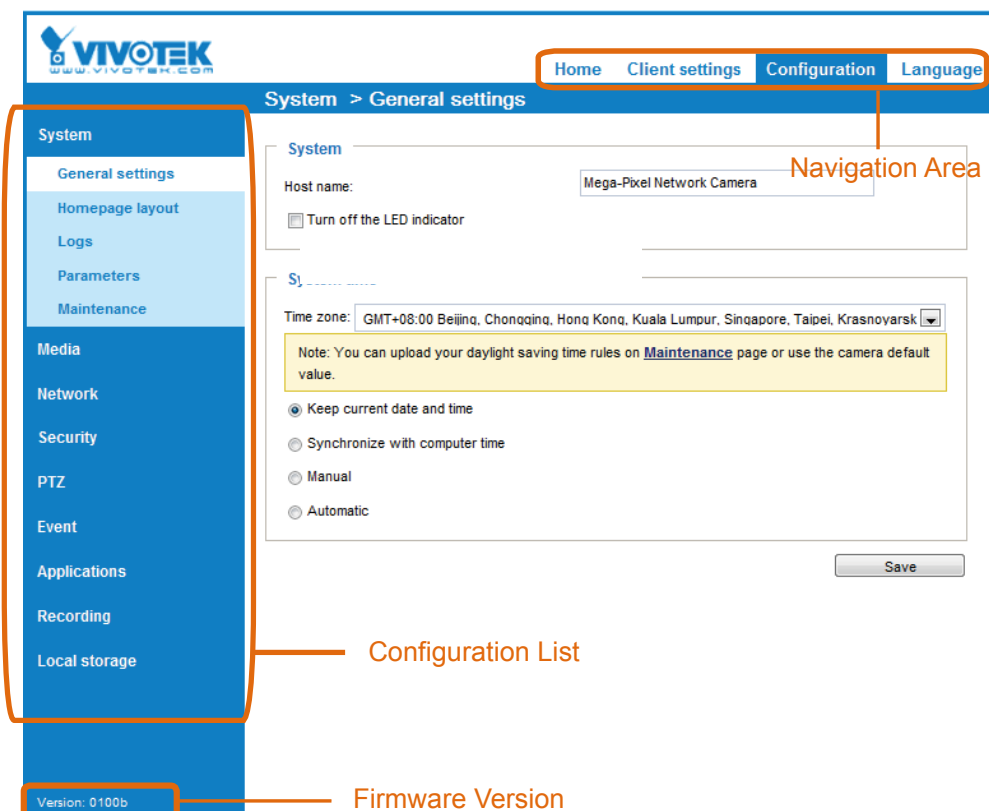
# Configuration

Click **Configuration** on the main page to enter the camera setting pages. Note that only Administrators can access the configuration page.

VIVOTEK offers an easy-to-use user interface that helps you set up your network camera with minimal effort.

In order to simplify the user interface, the detailed information will be hidden unless you click on the function item. When you click on the first sub-item, the detailed information for the first sub-item will be displayed; when you click on the second sub-item, the detailed information for the second sub-item will be displayed and that of the first sub-item will be hidden.

The following is the main page interface:



Each function on the configuration list will be explained in the following sections.

Navigation Area provides an instant switch among **Home** page (the monitoring page for live viewing), **Client settings**, **Configuration** page, and multi-language selection.

## System > General settings

This section explains how to configure the basic settings for the Network Camera, such as the host name and system time. It is composed of the following two columns: System, and System Time. When finished with the settings on this page, click **Save** at the bottom of the page to enable the settings.

### System

**System**

Host name:

Turn off the LED indicator

Host name: Enter a desired name for the Network Camera. The text will be displayed at the top of the main page, and also on the view cell of ST-7501 and VAST management software.

Turn off the LED indicators: If you do not want others to notice the network camera is in operation, you can select this option to turn off the LED indicators.

## System time

**System time**

Time zone:

Note: You can upload your daylight saving time rules on [Maintenance](#) page or use the camera default value.

Keep current date and time

Synchronize with computer time

Manual

Automatic

**Keep current date and time:** Select this option to preserve the current date and time of the Network Camera. The Network Camera's internal real-time clock maintains the date and time even when the power of the system is turned off.

**Synchronize with computer time:** Select this option to synchronize the date and time of the Network Camera with the local computer. The read-only date and time of the PC is displayed as updated.

**Manual:** The administrator can enter the date and time manually. Note that the date and time format are [yyyy/mm/dd] and [hh:mm:ss].

**Automatic:** The Network Time Protocol is a protocol which synchronizes computer clocks by periodically querying an NTP Server.

**NTP server:** Assign the IP address or domain name of the time-server. Leaving the text box blank connects the Network Camera to the default time servers.

**Update interval:** Select to update the time using the NTP server on an hourly, daily, weekly, or monthly basis.

**Time zone :** Select the appropriate time zone from the list. If you want to upload Daylight Savings Time rules, please refer to **System > Maintenance > Import/ Export files** on page 45 for details.

## System > Homepage layout

This section explains how to set up your own customized homepage layout.

### General settings

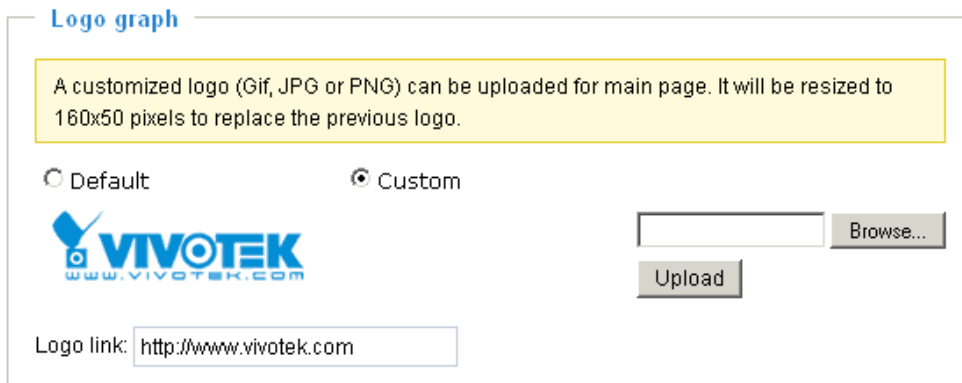
This column shows the settings of your homepage layout. You can manually select the background and font colors in Theme Options (the second tab on this page). The settings will be displayed automatically in this Preview field. The following shows the homepage using the default settings:



- **Hide Powered by VIVOTEK:** If you check this item, it will be removed from the homepage.

### Logo graph

Here you can change the logo at the top of your homepage.

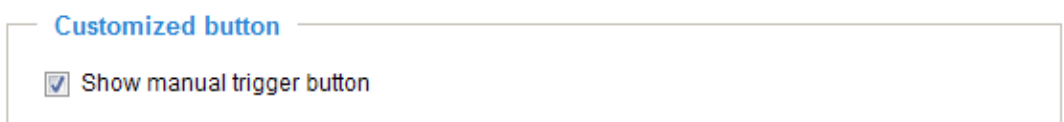


Follow the steps below to upload a new logo:

1. Click **Custom** and the Browse field will appear.
2. Select a logo from your files.
3. Click **Upload** to replace the existing logo with a new one.
4. Enter a website link if necessary.
5. Click **Save** to enable the settings.

### Customized button

If you want to hide manual trigger buttons on the homepage, please uncheck this item. This item is checked by default.



## Theme Options

Here you can change the color of your homepage layout. There are three types of preset patterns for you to choose from. The new layout will simultaneously appear in the **Preview** filed. Click **Save** to enable the settings.

General settings | Theme options

Font Color of the Video Title

Font Color

Background Color of the Control Area

Font Color of the Configuration Area

Background Color of the Configuration Area

Background Color of the Video Area

Frame Color

Preset patterns

Color

|                                   |         |
|-----------------------------------|---------|
| Font color:                       | #000000 |
| Font color of configuration area: | #FFFFFF |
| Font color of video title:        | #098BD6 |
| Bk color of control area:         | #C4EAFF |
| Bk color of configuration area:   | #0186D1 |
| Bk color of video area:           | #C4EAFF |
| Frame color:                      | #0186D1 |

Save

General settings | Theme options

VIVOTEK  
www.vivotek.com

Mega-Pixel Network

Video stream 1

Digital output On Off

Manual triggers:

Powered by VIVOTEK

General settings | Theme options

VIVOTEK  
www.vivotek.com

Mega-Pixel Network

Video stream 1

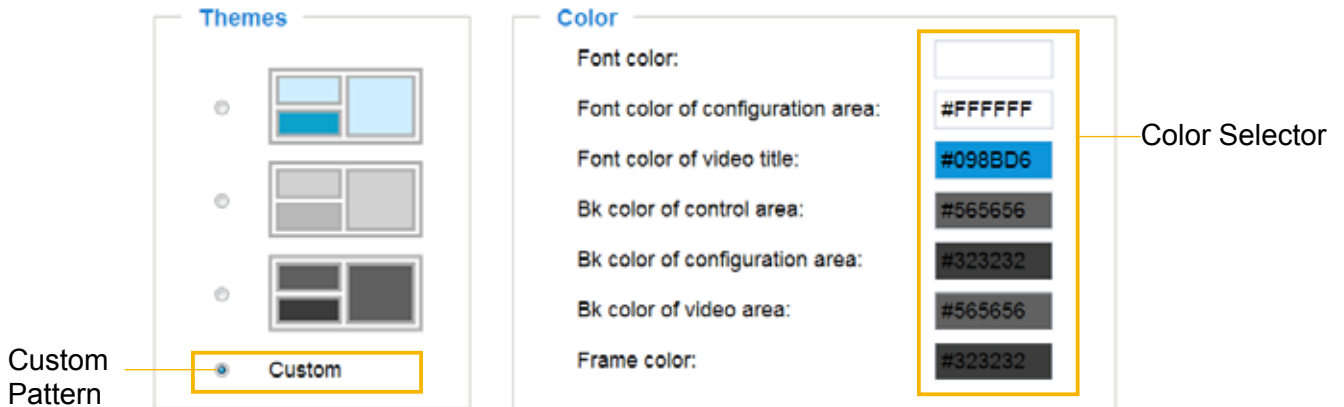
Digital output On Off

Manual triggers:

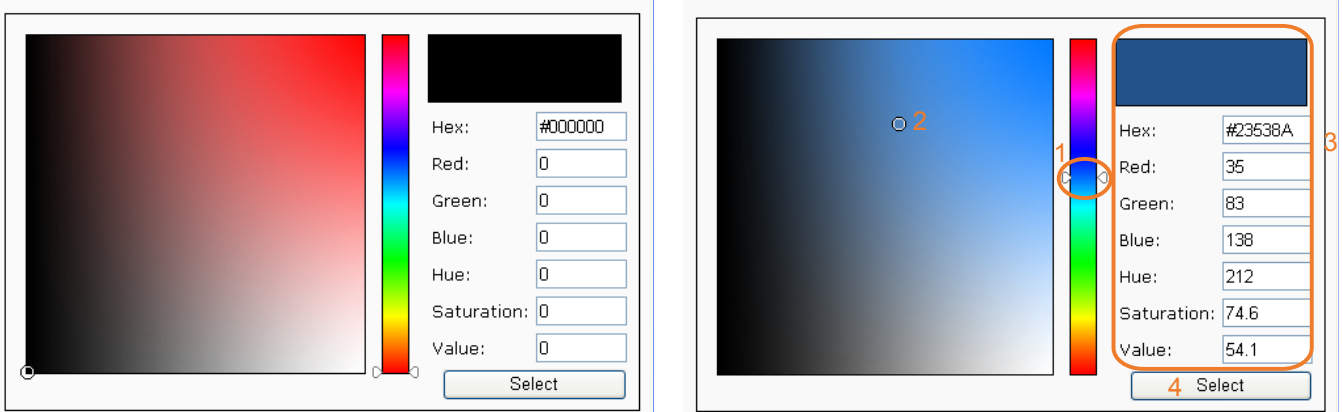
Powered by VIVOTEK

■ Follow the steps below to set up the customized homepage:

1. Click **Custom** on the left column.
2. Click the field where you want to change the color on the right column.



3. The palette window will pop up as shown below.



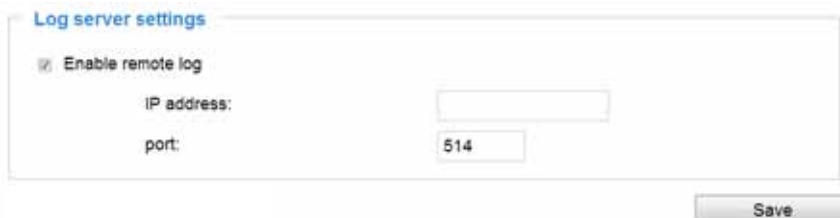
4. Drag the slider bar and click on the left square to select a desired color.
5. The selected color will be displayed in the corresponding fields and in the **Preview** column.
6. Click **Save** to enable the settings.



## System > Logs

This section explains how to configure the Network Camera to send the system log to a remote server as backup.

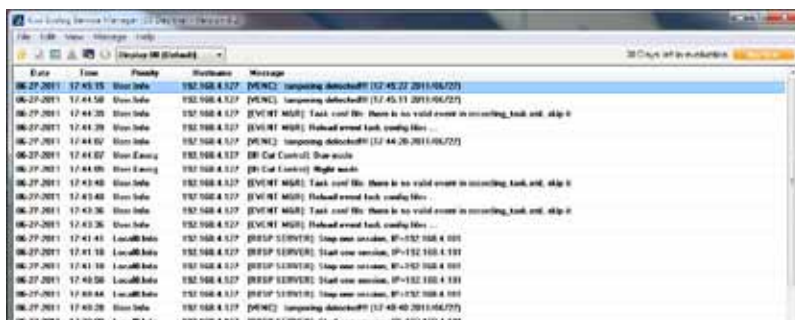
### Log server settings



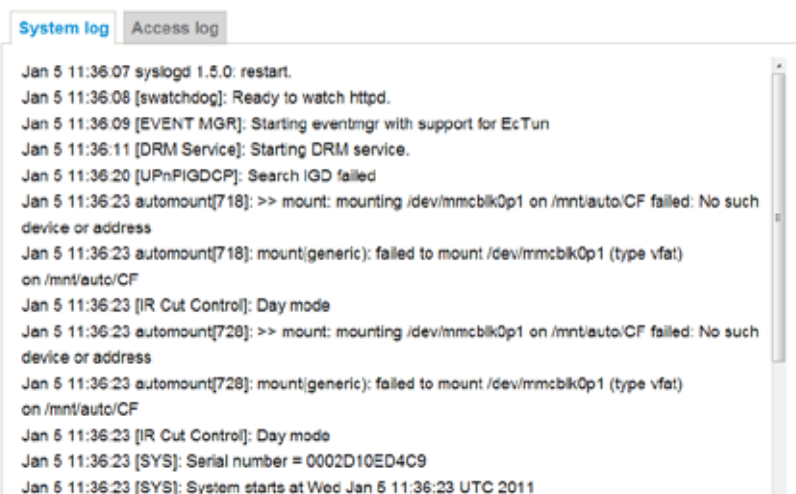
Follow the steps below to set up the remote log:

1. Select **Enable remote log**.
2. In the IP address text box, enter the IP address of the remote server.
2. In the port text box, enter the port number of the remote server.
3. When completed, click **Save** to enable the setting.

You can configure the Network Camera to send the system log file to a remote server as a log backup. Before utilizing this feature, it is suggested that the user install a log-recording tool to receive system log messages from the Network Camera. An example is Kiwi Syslog Daemon. Visit <http://www.kiwisyslog.com/kiwi-syslog-daemon-overview/>.

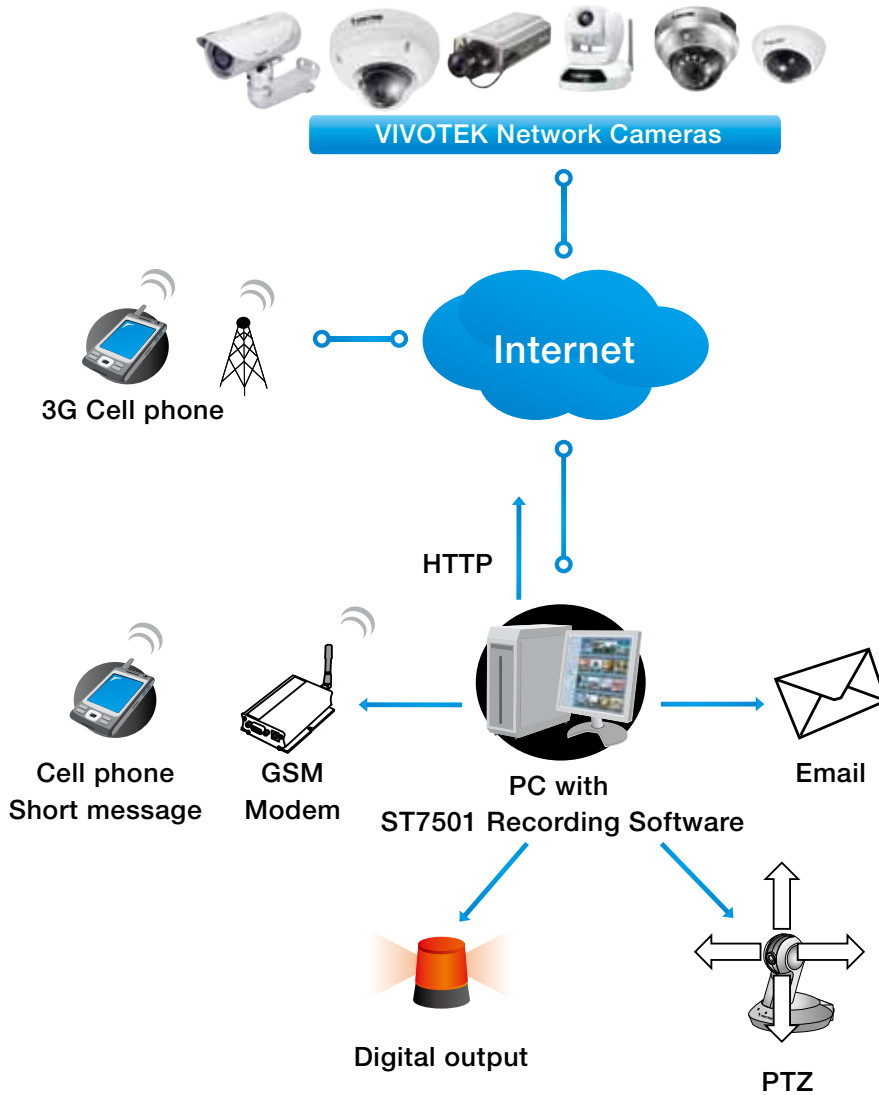


### System log



This column displays the system log in a chronological order. The system log is stored in the Network Camera's buffer area and will be overwritten when reaching a certain limit.

You can install the included ST7501 recording software, which provides an Event Management function group for delivering event messages via emails, GSM short messages, onscreen event panel, or to trigger an alarm, etc. For more information, refer to the ST7501 User Manual.



## Access log

System log

Access log

```
Jan 5 11:36:28 [RTSP SERVER]: Start one session, IP=172.16.2.52
Jan 5 11:49:15 [RTSP SERVER]: Start one session, IP=192.168.4.105
Jan 5 13:11:20 [RTSP SERVER]: Start one session, IP=192.168.4.105
```

Access log displays the access time and IP address of all viewers (including operators and administrators) in a chronological order. The access log is stored in the Network Camera's buffer area and will be overwritten when reaching a certain limit.

## System > Parameters

The View Parameters page lists the entire system's parameters. If you need technical assistance, please provide the information listed on this page.

### Parameters

```
system_hostname='Mega-Pixel Network Camera'
system_ledoff='0'
system_lowlight='1'
system_date='2013/12/26'
system_time='17:14:18'
system_datetime=''
system_ntp=''
system_timezoneindex='320'
system_daylight_enable='0'
system_daylight_dstactualmode='1'
system_daylight_auto_begintime='NONE'
system_daylight_auto_endtime='NONE'
system_daylight_timezones=',-360,-320,-280,-240,-241,-200,-201,-160,-140,-100,-60,-20,-10,-5,-1'
system_updateinterval='0'
system_info_modelname='IP8355EH'
system_info_extendedmodelname='IP8355EH'
system_info_serialnumber='0002D1278AD0'
system_info_firmwareversion='IP8355-VVTK-0100b'
system_info_language_count='9'
system_info_language_i0='English'
system_info_language_i1='Deutsch'
system_info_language_i2='Español'
system_info_language_i3='Français'
system_info_language_i4='Italiano'
system_info_language_i5='日本語'
system_info_language_i6='Português'
system_info_language_i7='简体中文'
system_info_language_i8='繁體中文'
```

## System > Maintenance

This chapter explains how to restore the Network Camera to factory default, upgrade firmware version, etc.

### General settings > Upgrade firmware

This feature allows you to upgrade the firmware of your Network Camera. It takes a few minutes to complete the process.

**Note: Do not power off the Network Camera during the upgrade!**

Follow the steps below to upgrade the firmware:

1. Download the latest firmware file from the VIVOTEK website. The file is in .pkg file format.
2. Click **Browse...** and specify the firmware file.
3. Click **Upgrade**. The Network Camera starts to upgrade and will reboot automatically when the upgrade completes.

If the upgrade is successful, you will see “Reboot system now!! This connection will close”. After that, re-access the Network Camera.

The following message is displayed when the upgrade has succeeded.

Reboot system now!!  
This connection will close.

The following message is displayed when you have selected an incorrect firmware file.

Starting firmware upgrade...  
Do not power down the server during the upgrade.  
The server will restart automatically after the upgrade is completed.  
This will take about 1 - 5 minutes.  
Wrong PKG file format  
Unpack fail

### General settings > Reboot

This feature allows you to reboot the Network Camera, which takes about one minute to complete. When completed, the live video page will be displayed in your browser. The following message will be displayed during the reboot process.

The device is rebooting now. Your browser will reconnect to <http://192.168.5.151:80/>  
If the connection fails, please manually enter the above IP address in your browser.



If the connection fails after rebooting, manually enter the IP address of the Network Camera in the address field to resume the connection.

## General settings > Restore

### Restore

Restore all settings to factory default except settings in

Network
  Daylight saving time
  Custom language
  VADP

This feature allows you to restore the Network Camera to factory default settings.

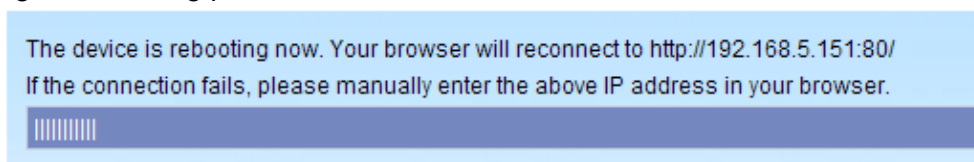
**Network:** Select this option to retain the Network Type settings (please refer to Network Type on page 63).

**Daylight Saving Time:** Select this option to retain the Daylight Saving Time settings (please refer to Import/Export files below on this page).

**Custom Language:** Select this option to retain the Custom Language settings.

**VADP:** Retain the VADP modules (3rd-party software stored on the SD card) and related settings.

If none of the options is selected, all settings will be restored to factory default. The following message is displayed during the restoring process.



## Import/Export files

This feature allows you to Export / Update daylight saving time rules, custom language file, configuration file, and server status report.

General settings
Import/Export files

### Export files

|  |                                       |
|--|---------------------------------------|
| Export daylight saving time configuration file | <input type="button" value="Export"/> |
| Export language file                           | <input type="button" value="Export"/> |
| Export configuration file                      | <input type="button" value="Export"/> |
| Export server status report                    | <input type="button" value="Export"/> |

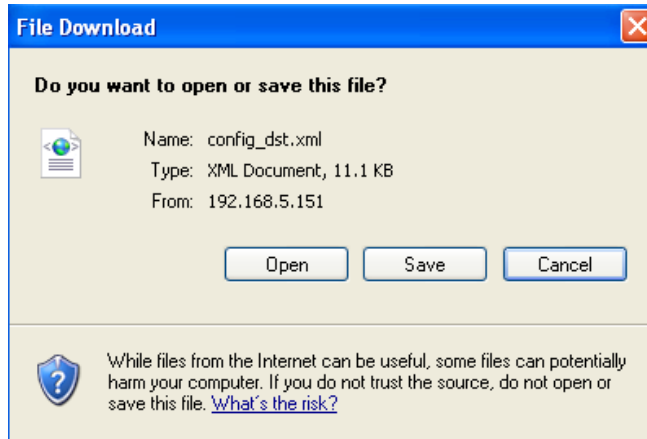
### Upload files

|                                    |                      |  |                                       |
|------------------------------------|----------------------|--|---------------------------------------|
| Update daylight saving time rules: | <input type="text"/> | <input type="button" value="Browse..."/> | <input type="button" value="Upload"/> |
| Update custom language file:       | <input type="text"/> | <input type="button" value="Browse..."/> | <input type="button" value="Upload"/> |
| Upload configuration file:         | <input type="text"/> | <input type="button" value="Browse..."/> | <input type="button" value="Upload"/> |

**Export daylight saving time configuration file:** Click to set the start and end time of DST (Daylight Saving).

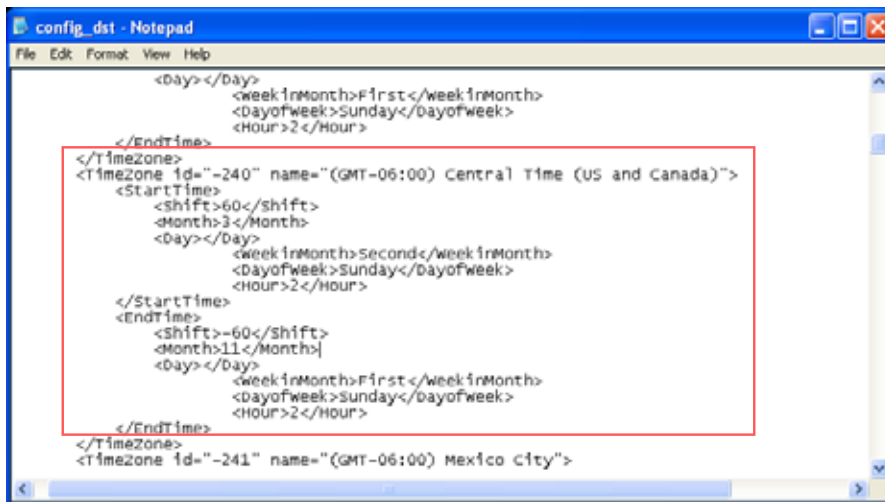
Follow the steps below to export:

1. In the Export files column, click **Export** to export the daylight saving time configuration file from the Network Camera.
2. A file download dialog will pop up as shown below. Click **Open** to review the XML file or click **Save** to store the file for editing.



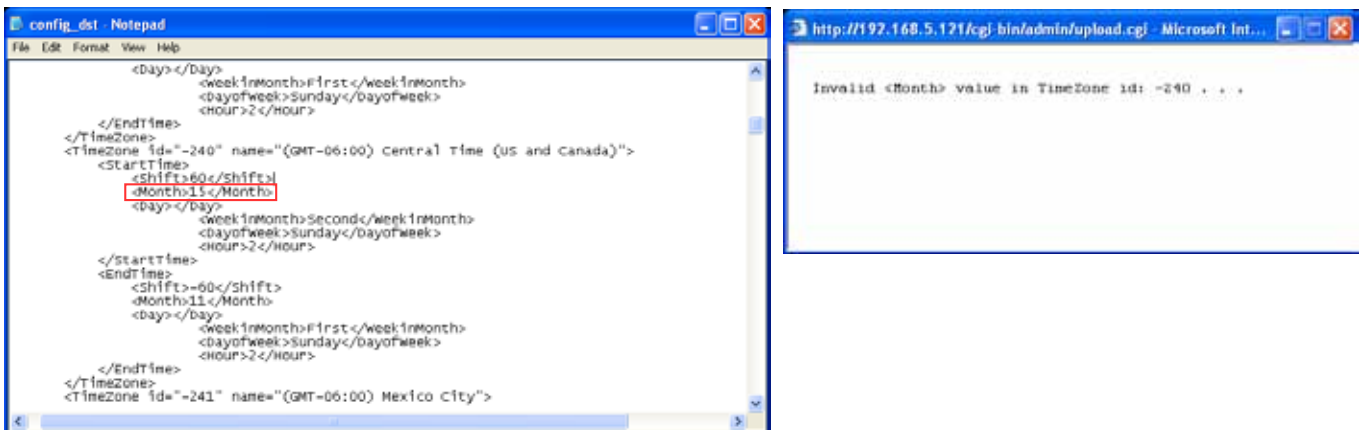
3. Open the file with Microsoft® Notepad and locate your time zone; set the start and end time of DST. When completed, save the file.

In the example below, DST begins each year at 2:00 a.m. on the second Sunday in March and ends at 2:00 a.m. on the first Sunday in November.

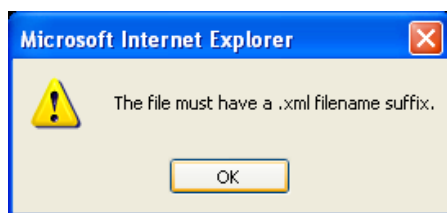


Update daylight saving time rules: Click **Browse...** and specify the XML file to update.

If the incorrect date and time are assigned, you will see the following warning message when uploading the file to the Network Camera.



The following message is displayed when attempting to upload an incorrect file format.



Export language file: Click to export language strings. VIVOTEK provides nine languages: English, Deutsch, Español, Français, Italiano, 日本語, Português, 簡體中文, and 繁體中文.

Update custom language file: Click **Browse...** and specify your own custom language file to upload.

Export configuration file: Click to export all parameters for the device and user-defined scripts.

Update configuration file: Click **Browse...** to update a configuration file. Please note that the model and firmware version of the device should be the same as the configuration file. If you have set up a fixed IP or other special settings for your device, it is not suggested to update a configuration file.

Export server status report: Click to export the current server status report, such as time, logs, parameters, process status, memory status, file system status, network status, kernel message ... and so on.



#### Tips:

- If a firmware upgrade is accidentally disrupted, say, by a power outage, you still have a last resort method to restore normal operation. See the following for how to bring the camera back to work:

Applicable scenario:

- (1) Power disconnected during firmware upgrade.
- (2) Unknown reason causing abnormal LED status, and a Restore cannot recover normal working condition.

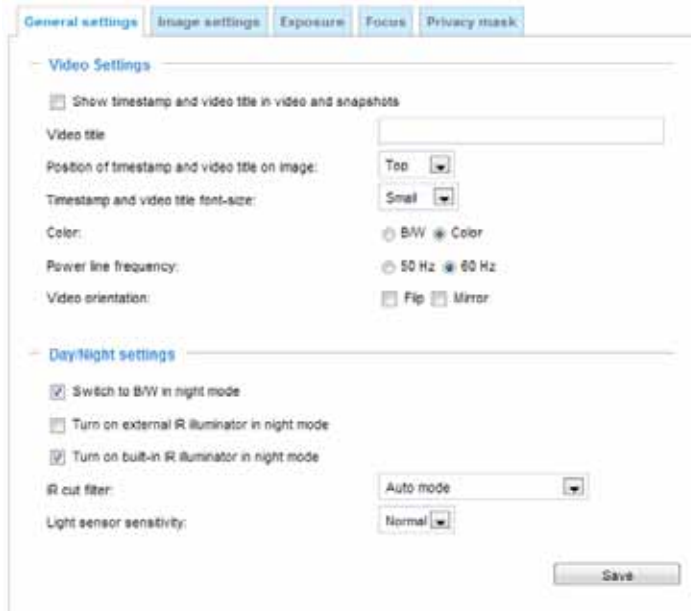
You can use the following methods to activate the camera with its backup firmware:

- (1) Press and hold down the reset button for at least one minute.
- (2) Power on the camera until the Red LED blinks rapidly.
- (3) After boot up, the firmware should return to the previous version before the camera hanged. (The procedure should take 5 to 10 minutes, longer than the normal boot-up process). When this process is completed, the LED status should return to normal.

## Media > Image

This section explains how to configure the image settings of the Network Camera. It is composed of the following five columns: General settings, Image settings, Exposure, Focus, and Privacy mask.

### General settings



#### Video title

Show timestamp and video title in video and snapshots: Enter a name that will be displayed on the title bar of the live video as shown below.



Position of timestamp and video title on image: Select to display time stamp and video title on the top or at the bottom of the video stream.

Timestamp and video title font size: Select the font size for the time stamp and title.

Color: Select to display color or black/white video streams.

Position of timestamp and video title on image: Select to display time stamp and video title on the top or at the bottom of the video stream.

Timestamp and video title font size: Select the font size for the time stamp and title.



**Power line frequency:** Set the power line frequency consistent with local utility settings to eliminate image flickering associated with fluorescent lights. Note that after the power line frequency is changed, you must disconnect and reconnect the power cord of the Network Camera in order for the new setting to take effect.

**Video orientation:** Flip - vertically reflect the display of the live video; Mirror - horizontally reflect the display of the live video. Select both options if the Network Camera is installed upside-down (e.g., on the ceiling) to correct the image orientation. Please note that if you have preset locations, those locations will be cleared after flip/mirror setting.

## Day/Night Settings

Day/Night settings

Switch to B/W in night mode

Turn on external IR illuminator in night mode

Turn on built-in IR illuminator in night mode

IR cut filter: Auto mode

Light sensor sensitivity: Normal

Save

### Switch to B/W in night mode

Select this to enable the Network Camera to automatically switch to Black/White during night mode.

### Turn on external IR illuminator in night mode

Select this to turn on the external IR illuminators when the camera detects low light condition and enters the night mode. This can be done by connecting a pair of DO signals to external IR device, and configuring a DO triggering event via the event setting.

### Turn on built-in IR illuminator in night mode

Select this to turn on the built-in IR illuminators (effective range up to 15 meters) when the camera detects low light condition and enters the night mode.

### IR cut filter

With a removable IR-cut filter, this Network Camera can automatically remove the filter to allow IR light enter the sensor during low light conditions.

#### ■ Auto mode

The Network Camera automatically removes the filter by judging the level of ambient light.

#### ■ Day mode

In day mode, the Network Camera switches on the IR cut filter at all times to block infrared light from reaching the sensor so that the colors will not be distorted.

#### ■ Night mode

In night mode, the Network Camera switches off the IR cut filter at all times for the sensor to accept infrared light, thus helping to improve low light sensitivity.

#### ■ Synchronize with digital input

The Network Camera automatically removes the IR cut filter when a Digital Input is triggered. This applies when the camera is installed into a housing that provides its own IR lights and sensor.

#### ■ Schedule mode

The Network Camera switches between day mode and night mode based on a specified schedule. Enter the start and end time for day mode. Note that the time format is [hh:mm] and is expressed in 24-hour clock time. By default, the start and end time of day mode are set to 07:00 and 18:00.

### Light sensor sensitivity

Select Low, Normal, or High sensitivity for the light sensor.

## Image settings

On this page, you can tune the White balance and Image adjustment.

Sensor Setting 1:  
For normal situations

Sensor Setting 2:  
For special situations



White balance: Adjust the value for the best color temperature.

■ You may follow the steps below to adjust the white balance to the best color temperature.

1. Place a sheet of paper of white or cooler-color temperature color, such as blue, in front of the lens, then allow the Network Camera to automatically adjust the color temperature.
2. Click the **On** button to **Fix current value** and confirm the setting while the white balance is being measured.

■ In the manual mode, you can manually tune the color temperature by pulling the RGain and BGain slide bars.

### Image Adjustment

■ **Brightness**: Adjust the image brightness level, which ranges from 0% to 100%.

■ **Contrast**: Adjust the image contrast level, which ranges from 0% to 100%.

■ **Saturation**: Adjust the image saturation level, which ranges from 0% to 100%.

■ **Sharpness**: Adjust the image sharpness level, which ranges from 0% to 100%.

■ **Gamma curve**: Default is Auto. You can also adjust the image sharpness level, which ranges from 0 to 0.45. You may let firmware Optimize your display or select a value to change the preferred level of Gamma correction towards higher contrast or towards the higher luminance for detailed expression for both dark and lighted areas of an image.

### Enable 3D Noise reduction

- Check to enable noise reduction in order to reduce noises and flickers in image. This applies to the onboard 3D Noise Reduction feature. Use the pull-down menu to adjust the reduction strength. Note that applying this function to the video channel will consume system computing power.

3D Noise Reduction is mostly applied in low-light conditions. When enabled in a low-light condition with fast moving objects, trails of after-images may occur. You may then select a lower strength level or disable the function.

### Electronic image stabilizer

Select the checkbox to enable the Electronic image stabilization (EIS) function.

Note that the **Preview** button has been cancelled, all changes made to image settings is directly shown on screen. You can click **Restore** to recall the original settings without incorporating the changes. When completed with the settings on this page, click **Save** to enable the setting. You can also click on **Profile** to adjust all settings above in a pop-up window for special lighting conditions.

**Activated period**

Enable and apply this profile to

Schedule mode:

From  to  [hh:mm]

Activated period: Select the mode this profile will apply to: Day mode, Night mode, or Schedule mode. Please manually enter a range of time if you choose Schedule mode. Then check **Save** to take effect.

## Exposure

On this page, you can set the Measurement window, Exposure level, and Exposure mode. Detailed configurations will be automatically adjusted since the sensor library will automatically adjust the value according to the ambient light.

**Exposure control**

Exposure level:  ▼

Exposure mode:  ▼

Iris mode:  ▼

**WDR Pro**

Enable WDR Pro

Measurement Window: This function allows users to set measurement window(s) for low light compensation.

- Full view: Calculate the full range of view and offer appropriate light compensation.

**IMPORTANT:**

1. When the **WDR Pro** function is enabled, you cannot enter the Exposure > Manual mode window to configure a measurement window.
2. When in the Exposure > Manual setting page, you can configure up to **10 Inclusive** measurement windows. There are no Exclusive measurement windows.
3. When the **WDR Pro** function is enabled or disabled, the configuration live view will be temporarily disabled for **8 to 10** seconds.
4. If you have different WDR settings in the normal and Profile settings, live view will also be temporarily disabled.
5. Trails of after images may occur when large, fast-moving objects appear in the FOV, and when the **WDR Pro** is enabled.
6. When the **Electronic image stabilizer** is enabled, the live view on the main page will zoom in slightly to a 1.1 ratio.

- Custom: This option allows you to manually add a specific window as a measuring area. The measuring window refers to “weighted window” where the lighting condition within the particular area is taken into account. Camera firmware then adopts the weighted averages method to calculate the value. You can create up to 10 inclusive windows.



- BLC: When selected, a BLC window will appear on screen meaning that the center of the scene will be taken as a weighed area. This option enables light compensation for images that are too dark or too bright to recognize; for example, for the dark side of objects that is posed against bright sunlight.

### Exposure control:

- **Exposure level:** You can manually set the Exposure level, which ranges from -2.0 to +2.0 (dark to bright). You can click and drag the pointers on the **Exposure time** and **Gain control** slide bars to specify a range of shutter time and Gain control values within which the camera can automatically tune to an optimal imaging result. You may prefer a shorter shutter time to better capture moving objects, while a faster shutter reduces light and needs to be compensated by electrical brightness gains.

- **Exposure mode:**

**Auto:** If you set Exposure mode as **Auto**, the Exposure time and Gain control will not be configurable since the sensor library will automatically adjust the value according to the ambient light. Then you can set iris mode as “indoor” or “outdoor” to reach the best image quality.

- **Iris mode:** Select Indoor or Outdoor iris mode to adapt to the installation. The preset iris aperture setting will apply.

**Manual:** **(Note that some of the Manual options will be disabled when WDR Pro is enabled!)**

- **Iris Adjustment** (available in the Manual mode): The camera comes with a P-iris lens, which controls the iris opening with extreme precision by its built-in stepping motor. Via software controls, the lens maintains the iris opening at an optimal level at all times, resulting in superior sharpness and depth of field as well as image quality.

You can manually tune the value of iris opening (aperture size), which can range from 0 (Close, smallest aperture size) to 100 (Open, largest aperture size).

Once set, the iris will stay at current position as long as the lighting condition allows. When external lighting conditions exceed an acceptable range, the P-iris mechanism adjusts itself.

- **Exposure Time:** The configurable max. exposure time is tunable according to lighting conditions with values ranging from 1/10000 to 1/5 of a second.
- **Gain Control:** Tune the slider bar to set the Gain Control to the best image quality. Higher gain control value will generate a certain amount of noises.

You can click **Restore** to recall the original settings without incorporating the changes. When completed with the settings on this page, click **Save** to enable the settings.

- **WDR Pro :** When enabled, you can select the strength of the WDR function. The Low, Medium, High options correspond to the level of contrast between the overly-lit area and the shaded areas. For example, the High option applies to a high contrast scenario. Note that when the exposure time is set to longer than 1/60 second, the WDR function will be disabled.

The Sensitivity option applies to the response speed to the change in bright-to-dark lighting contrast.

If you want to configure another sensor setting for day/night/schedule mode, please click **Profile** to open the Profile of exposure settings page as shown below.

Activated period: Select the mode this profile to apply to the Schedule mode. Please manually enter a range of time if you choose Schedule mode. Then check **Save** to take effect.

Please follow the steps below to setup a profile:

1. Check **Enable this profile**.
2. Select the applied mode: Day mode, Night mode, or Schedule mode. Please manually enter a range of time if you choose the Schedule mode.
3. Configure Exposure control settings in the following columns. Please refer to previous discussions for detailed information.
4. Click **Save** to enable the setting and click **Close** to exit the page.

**Profile of exposure settings**

Activated period

Enable and apply the profile to

Measurement window

Full view  Custom  BLC

Exposure control

Exposure level:

Exposure mode:

WDR mode:

WDR Pro

Enable WDR Pro II

Strength:

Restore Save Close

## Focus

Focus, also known as **Remote Focus**, is applicable to Network Cameras that are equipped with stepping motor lens. The automated focus adjustment function eliminates the needs to physically adjust camera focus. In an outdoor deployment consisting of a large number of cameras, the auto focus function can be very helpful when these cameras become out of focus after days or weeks of operation. And that can easily result from the effects of natural forces, e.g., shrink and expand due to a wide range of operating temperatures and the vibration caused by wind.



Below is the procedure to perform the automated Zoom and Focus function:

1. Use the **Zoom** slide bar to find an optimal view of the area of interest where you want to adjust its focus. Click and drag the double-triangle pointer to rapidly adjust the zoom ratio. The **Focus** pointer moves with the Zoom pointer correspondingly.
2. Select from the bottom of the screen whether you want to perform focus adjustment on the **Full view** or within a **Custom** focus window. You can create a custom window and click and drag the window to a desired position on screen.

3. Click to select the **Full-range scan** and/or the **Fully-open iris** checkboxes. When selected, a full-range scan through the camera's entire focal length can take about 30 to 80 seconds. If not, the auto focus scan will only go through the length where optimal focus may occur, and that takes about 15 to 20 seconds. In theory, best results of the auto scan can be acquired when the camera's iris is fully open. The iris fully open checkbox is selected by default.
4. Click on the **Perform auto focus** button, and wait for the scan to complete.
5. After a short while, the clearest image obtained should be displayed and the optimal focus range achieved. Use the arrow marks on the sides to fine-tune the focus if you are not satisfied with the results.

The methodology of using the Resize Buttons at the upper left corner of the streaming window is the same as that on the home page.

**Auto Focus:**

Click the **Perform auto focus** button for the camera to automatically find the best focus. The process takes about 20 seconds to complete. The Focus pointer will stay at the optimal location on the slide bar.

You may still need to use the arrow marks to fine-tune the focus depending on the live image on your screen. ">" means moving from wide to tele end; and "<" tele to wide.

- **Full-range scan:** If selected, the auto focus scan will be performed throughout the complete range of focus. The full-range scan takes a longer time to complete. A full-range scan usually takes approximately 3 minutes or longer.
- **Fully-open Iris:** By default, this checkbox is selected for performing an auto scan and should provide an optimal scan result.

**Focus window:**

By default, the optimal focus is found on a full view window. You may designate a custom window within your current field of view to acquire the best focus out of it. However, you can not place a focus window on a distant background, e.g., a hall way that stretches away for 3 meters or farther. Doing so you will not benefit from the Focus window function.

- **Full view:** The focus tuning takes place by referring to the full view.
- **Custom:** You can create a focus window and drag it to a place of interest in your view window. Note that it is recommended to use this function only when you have a solid object in your view window that is showing a consistent color or texture. This function will not take effect if you set the focus window on a distant background.



## Privacy mask

Click **Privacy Mask** to open the settings page. On this page, you can block out sensitive zones to address privacy concerns.

Enable privacy mask



■ To set the privacy mask windows, follow the steps below:

1. Click **New** to add a new window.
2. You can use the mouse cursor to size and drag-drop the window, which is recommended to be at least twice the size of the object (height and width) you want to cover.
3. Enter a Window Name and click **Save** to enable the setting.
4. Click on the **Enable privacy mask** checkbox to enable this function.



### NOTE:

- ▶ *Up to 5 privacy mask windows can be set up on the same screen.*
- ▶ *If you want to delete the privacy mask window, please click the 'x' on the upper right corner of the window.*

## Media > Video

### Stream settings

Stream

- ▶ Video settings for stream 1
- ▶ Video settings for stream 2

This Network Camera supports multiple streams with frame sizes ranging from 176 x 144 to 1280 x 1024 (IP8355EH)  
- or -  
176 x 144 to 1920 x 1080 (IP8365EH).

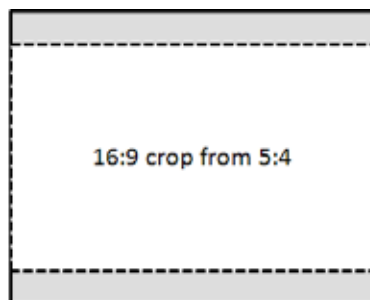
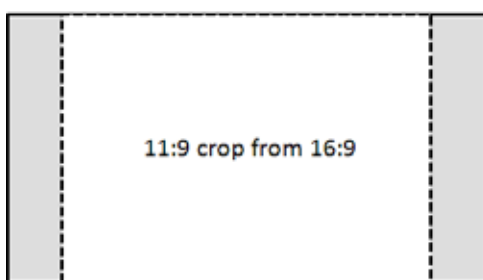
The definition of multiple streams:

- Stream 1: The default frame size for Stream 1 is set to the 1280 x 1024 at 30fps.
- Stream 2: The default frame size for Stream 2 is set to the 640 x 480 at 15fps.



#### IMPORTANT:

1. When selecting a different resolution for a video stream, a smaller resolution with a different aspect ratio will be proportionally generated from the original field of view. However, some resolutions, e.g., the 1280x720, has an aspect ratio of 16:9; which is different from the default 5:4 ratio. To maintain the aspect ratio in the display, some areas on the sides of the field of view will be left out.



2. The Customized frame rate number is not configurable.
3. If manually configuring the Fixed quality value for a video stream using the Customized method, the lowest quality number is 10.

Click the stream item to display the detailed information. The maximum frame size will follow your settings in the above Viewing Window sections.



This Network Camera offers real-time H.264 and MJPEG compression standards (Dual Codec) for real-time viewing. If the **H.264** mode is selected, the video is streamed via RTSP protocol. There are several parameters through which you can adjust the video performance:

H.264

Frame size: 1280x1024

Maximum frame rate: 30 fps

Intra frame period: 1 S

Video quality

Constant bit rate:

Target bit rate: 3 Mbps

Policy: Frame rate priority

Fixed quality:

#### ■ Frame size

You can set up different video resolutions for different viewing devices. For example, set a smaller frame size and lower bit rate for remote viewing on mobile phones and a larger video size and a higher bit rate for live viewing on web browsers. Note that a larger frame size takes up more network bandwidth.

#### ■ Maximum frame rate

This limits the maximum refresh frame rate per second. Set the frame rate higher for smoother video quality and for recognizing moving objects in the field of view.

If the power line frequency is set to 50Hz, the frame rates are selectable at 1fps, 2fps, 3fps, 5fps, 8fps, 10fps, 15fps, 20fps, and 25fps. If the power line frequency is set to 60Hz, the frame rates are selectable at 1fps, 2fps, 3fps, 5fps, 8fps, 10fps, 15fps, 20fps, 25fps, and 30fps.

#### ■ Intra frame period

Determine how often for firmware to plant an I frame. The shorter the duration, the more likely you will get better video quality, but at the cost of higher network bandwidth consumption. Select the intra frame period from the following durations: 1/4 second, 1/2 second, 1 second, 2 seconds, 3 seconds, and 4 seconds.

#### ■ Video quality

- **Constant bit rate:** A complex scene generally produces a larger file size, meaning that higher bandwidth will be needed for data transmission. The bandwidth utilization is configurable to match a selected level, resulting in mutable video quality performance. The bit rates are selectable at the following rates: 20Kbps, 30Kbps, 40Kbps, 50Kbps, 64Kbps, 128Kbps, 256Kbps, 512Kbps, 768Kbps, 1Mbps, 2Mbps, 3Mbps, 4Mbps, 6Mbps, and 8Mbps. You can also select **Customize** and manually enter a value.
  - **Target bit rate:** select a bit rate from the pull-down menu. The bit rate ranges from 20kbps to a maximum of 8Mbps. The bit rate then becomes the Average or Upper bound bit rate number. The Network Camera will strive to deliver video streams around or within the bit rate limitation you impose.
  - **Policy:** If **Frame rate priority** is selected, the Network Camera will try to maintain the frame rate per second performance, while the image quality will be compromised. If **Image quality priority** is selected, the Network Camera may drop some video frames in order to maintain image quality.
- **Fixed quality:** On the other hand, if **Fixed quality** is selected, all frames are transmitted with the same quality; bandwidth utilization is therefore unpredictable. The video quality can be adjusted to the following settings: Medium, Standard, Good, Detailed, and Excellent. You can also select **Customize** and manually enter a value.
  - **Maximum bit rate:** With the guaranteed image quality, you might still want to place a bit rate limitation to control the size of video streams for bandwidth and storage concerns. The configurable bit rate starts from 1Mbps to 40Mbps.

The Maximum bit rate setting in the Fixed quality configuration can ensure a reasonable and limited use of network bandwidth. For example, in low light conditions where a Fixed quality setting is applied, video packet sizes can tremendously increase when noises are produced with electrical gains.

You may also manually enter a bit rate number by selecting the **Customized** option.

If **JPEG** mode is selected, the Network Camera sends consecutive JPEG images to the client, producing a moving effect similar to a filmstrip. Every single JPEG image transmitted guarantees the same image quality, which in turn comes at the expense of variable bandwidth usage. Because the media contents are a combination of JPEG images, no audio data is transmitted to the client. There are three parameters provided in MJPEG mode to control the video performance:

JPEG

Frame size:

Maximum frame rate:

Video quality

Constant bit rate:

Target bit rate:

Policy:

Fixed quality:

#### ■ Frame size

You can set up different video resolution for different viewing devices. For example, set a smaller frame size and lower bit rate for remote viewing on mobile phones and a larger video size and a higher bit rate for live viewing on web browsers. Note that a larger frame size takes up more bandwidth.

#### ■ Maximum frame rate

This limits the maximum refresh frame rate per second. Set the frame rate higher for smoother video quality.

If the power line frequency is set to 50Hz, the frame rates are selectable at 1fps, 2fps, 3fps, 5fps, 8fps, 10fps, 15fps, 20fps, and 25fps. If the power line frequency is set to 60Hz, the frame rates are selectable at 1fps, 2fps, 3fps, 5fps, 8fps, 10fps, 15fps, 20fps, 25fps, and 30fps. The frame rate will decrease if you select a higher resolution.

#### ■ Video quality

Refer to the previous page setting an average or upper bound threshold for controlling the bandwidth consumed for transmitting motion jpegs. The configuration method is identical to that for MPEG4 and H.264.

For Constant Bit Rate and other settings, refer to the previous page for details.



#### NOTE:

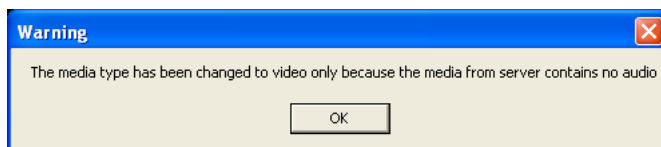
- ▶ *Video quality and fixed quality refers to the **compression rate**, so a lower value will produce higher quality.*
- ▶ *Converting high-quality video may significantly increase the CPU loading, and you may encounter streaming disconnection or video loss while capturing a complicated scene. In the event of occurrence, we suggest you customize a lower video resolution or reduce the frame rate to obtain smooth video.*

## Media > Audio

### Audio Settings

The screenshot shows the 'Audio settings' window. At the top left is a 'Mute' checkbox. Below it is a slider for 'External microphone input gain' with a value of 65%. The 'Audio type' section has three radio buttons: 'AAC bit rate' (selected), 'G.711', and 'G.726 bit rate'. Each radio button is followed by a dropdown menu showing the selected bit rate: '16 Kbps' for AAC, 'pcmu' for G.711, and '16 Kbps' for G.726. A 'Save' button is located at the bottom right of the settings panel.

**Mute:** Select this option to disable audio transmission from the Network Camera to all clients. Note that if muted, no audio data will be transmitted even if audio transmission is enabled on the Client Settings page. In that case, the following message is displayed:



**External microphone input gain:** Select the gain of the external audio input according to ambient conditions. Adjust the gain from 100% (most sensitive) to 0% (least sensitive).

**Audio type:** Select audio codec AAC or GSM-AMR and the bit rate.

- AAC provides good sound quality at the cost of higher bandwidth consumption. The bit rates are selectable from: 16Kbps, 32Kbps, 48Kbps, 64Kbps, 96Kbps, and 128Kbps.
- G.711 also provides good sound quality and requires about 64Kbps. Select pcmu ( $\mu$ -Law) or pcma (A-Law) mode.
- G.726 is a speech codec standard covering voice transmission at rates of 16, 24, 32, and 40kbit/s.

When completed with the settings on this page, click **Save** to enable the settings.

## Network > General settings

This section explains how to configure a wired network connection for the Network Camera.

### Network Type

### LAN

Select this option when the Network Camera is deployed on a local area network (LAN) and is intended to be accessed by local computers. The default setting for the Network Type is LAN. Please remember to click on the **Save** button when you complete the Network setting.

Get IP address automatically: Select this option to obtain an available dynamic IP address assigned by the DHCP server each time the camera is connected to the LAN.

Use fixed IP address: Select this option to manually assign a static IP address to the Network Camera.

1. You can make use of VIVOTEK Installation Wizard 2 on the software CD to easily set up the Network Camera on LAN. Please refer to Software Installation on page 17 for details.
2. Enter the Static IP, Subnet mask, Default router, and Primary DNS provided by your ISP or network administrator.

Subnet mask: This is used to determine if the destination is in the same subnet. The default value is "255.255.255.0".

Default router: This is the gateway used to forward frames to destinations in a different subnet. Invalid router setting will disable the transmission to destinations across different subnets.

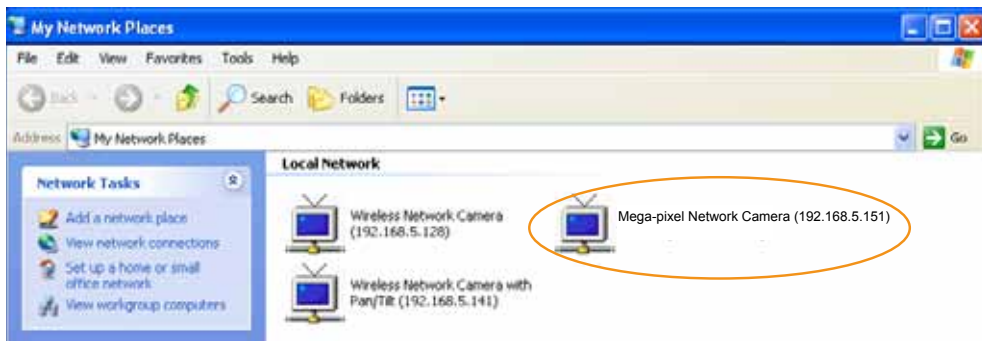
Primary DNS: The primary domain name server that translates hostnames into IP addresses.

Secondary DNS: Secondary domain name server that backups the Primary DNS.

Primary WINS server: The primary WINS server that maintains the database of computer names and IP addresses.

Secondary WINS server: The secondary WINS server that maintains the database of computer names and IP addresses.

Enable UPnP presentation: Select this option to enable UPnP™ presentation for your Network Camera so that whenever a Network Camera is presented to the LAN, the shortcuts to connected Network Cameras will be listed in My Network Places. You can click the shortcut to link to the web browser. Currently, UPnP™ is supported by Windows XP or later. Note that to utilize this feature, please make sure the UPnP™ component is installed on your computer.



Enable UPnP port forwarding: To access the Network Camera from the Internet, select this option to allow the Network Camera to open ports automatically on the router so that video streams can be sent out from a LAN. To utilize of this feature, make sure that your router supports UPnP™ and it is activated.

**PPPoE (Point-to-point over Ethernet)**

Select this option to configure your Network Camera to make it accessible from anywhere as long as there is an Internet connection. Note that to utilize this feature, it requires an account provided by your ISP.

Follow the steps below to acquire your Network Camera’s public IP address.

1. Set up the Network Camera on the LAN.
2. Go to Configuration > Event > Event settings > Add server (please refer to Add server on page 102) to add a new email or FTP server.
3. Go to Configuration > Event > Event settings > Add media (please refer to Add media on page 107).  
 Select System log so that you will receive the system log in TXT file format which contains the Network Camera’s public IP address in your email or on the FTP server.
4. Go to Configuration > Network > General settings > Network type. Select PPPoE and enter the user name and password provided by your ISP. Click **Save** to enable the setting.

**Network type**

LAN

PPPoE

User name:

Password:

Confirm password:

Enable IPv6

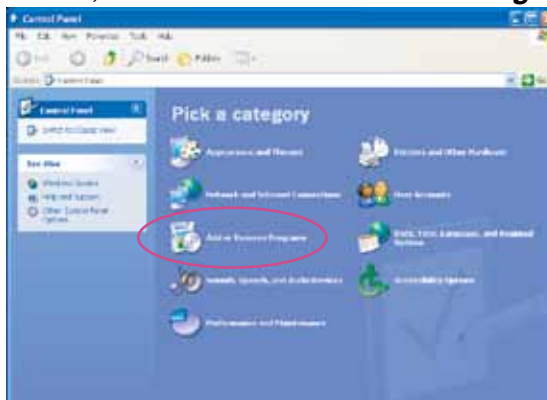
5. The Network Camera will reboot.
6. Disconnect the power to the Network Camera; remove it from the LAN environment.



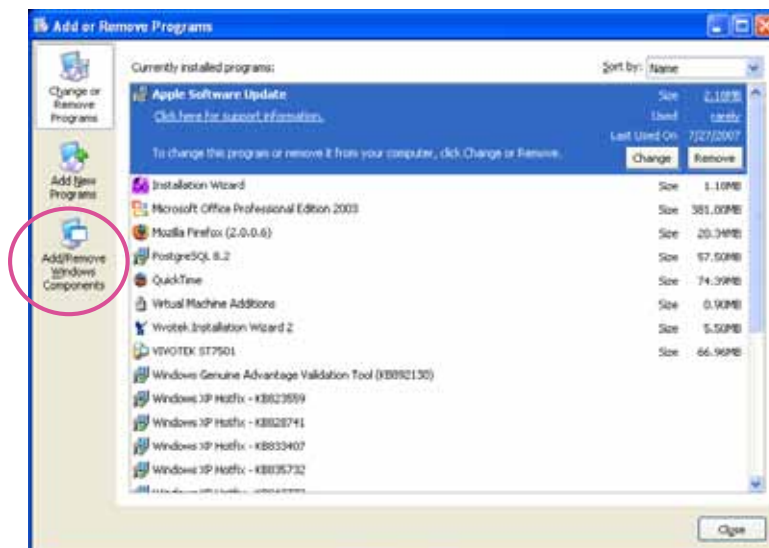
**NOTE:**

- ▶ If the default ports are already used by other devices connected to the same router, the Network Camera will select other ports for the Network Camera.
- ▶ If UPnP™ is not supported by your router, you will see the following message:  
**Error: Router does not support UPnP port forwarding.**
- ▶ Steps to enable the UPnP™ user interface on your computer:  
Note that you must log on to the computer as a system administrator to install the UPnP™ components.

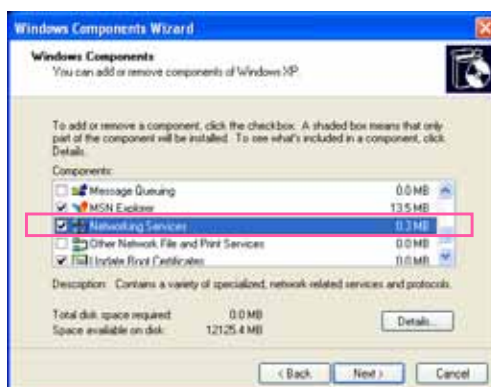
1. Go to Start, click **Control Panel**, then click **Add or Remove Programs**.



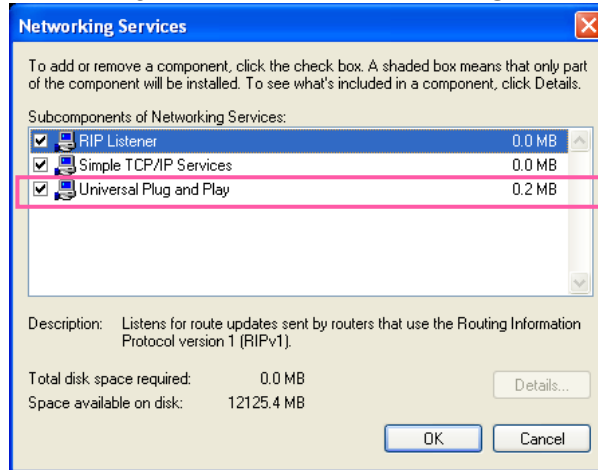
2. In the Add or Remove Programs dialog box, click **Add/Remove Windows Components**.



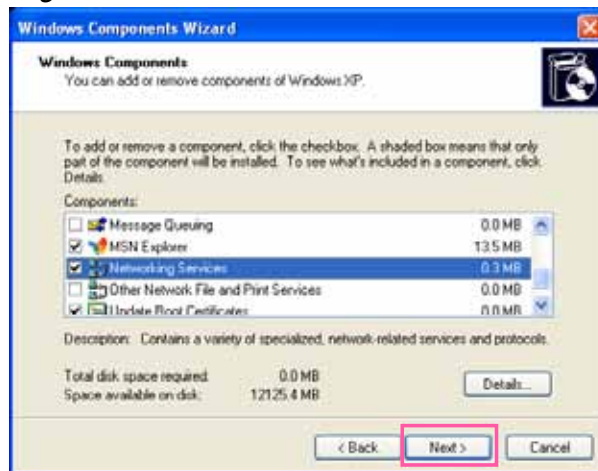
3. In the Windows Components Wizard dialog box, select **Networking Services** and click **Details**.



4. In the Networking Services dialog box, select **Universal Plug and Play** and click **OK**.



5. Click **Next** in the following window.



6. Click **Finish**. UPnP™ is enabled.

- ▶ **How does UPnP™ work?**  
 UPnP™ networking technology provides automatic IP configuration and dynamic discovery of devices added to a network. Services and capabilities offered by networked devices, such as printing and file sharing, are available among each other without the need for cumbersome network configuration. In the case of Network Cameras, you will see Network Camera shortcuts under My Network Places.
- ▶ **Enabling UPnP port forwarding allows the Network Camera to open a secondary HTTP port on the router-not HTTP port-meaning that you have to add the secondary HTTP port number to the Network Camera’s public address in order to access the Network Camera from the Internet. For example, when the HTTP port is set to 80 and the secondary HTTP port is set to 8080, refer to the list below for the Network Camera’s IP address.**

| From the Internet          | In LAN   |
|----------------------------|--|
| http://203.67.124.123:8080 | http://192.168.4.160 or<br>http://192.168.4.160:8080 |

- ▶ **If the PPPoE settings are incorrectly configured or the Internet access is not working, restore the Network Camera to factory default; please refer to Restore on page 45 for details. After the Network Camera is reset to factory default, it will be accessible on the LAN.**

## Enable IPv6

Select the Enable IPv6 checkbox and click **Save** to enable IPv6 settings. Please note that this only works if your network environment and hardware equipment support IPv6. The browser should be Microsoft® Internet Explorer 7 or 8, Mozilla Firefox 13.0 or above.

**Network type**

LAN

PPPoE

User name:

Password:

Confirm password:

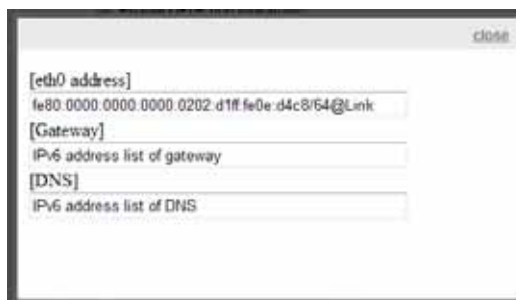
Enable IPv6

**IPv6 information**

Manually setup the IP address

When IPv6 is enabled, by default, the network camera will listen to router advertisements and be assigned with a link-local IPv6 address accordingly.

IPv6 Information: Click this button to obtain the IPv6 information as shown below.



If your IPv6 settings are successful, the IPv6 address list will be listed in the pop-up window. The IPv6 address will be displayed as follows:

### Refers to Ethernet

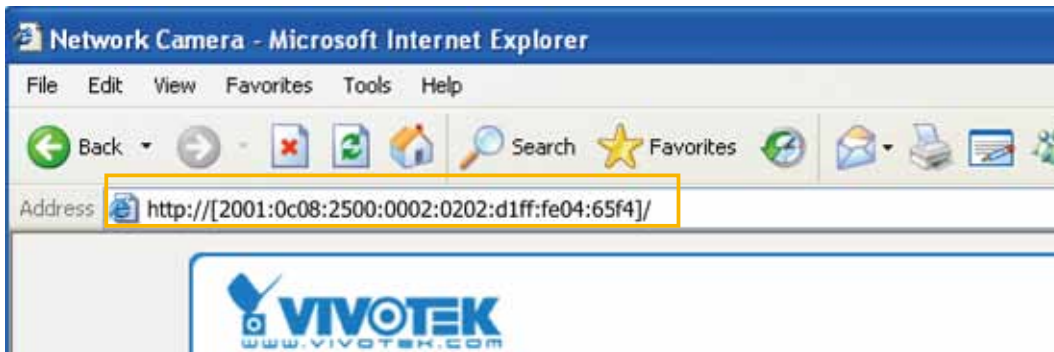
|   |   |
|---|---|
| [eth0 address]                                    |   |
| 2001:0c08:2500:0002:0202:d1ff:fe04:65f4/64@Global | — Link-global IPv6 address/network mask |
| fe80:0000:0000:0000:0202:d1ff:fe04:65f4/64@Link   | — Link-local IPv6 address/network mask  |
| [Gateway]   |   |
| fe80::211:d8ff:fea2:1a2b                          |   |
| [DNS]   |   |
| 2010:05c0:97&d::                                  |   |

Please follow the steps below to link to an IPv6 address:

1. Open your web browser.
2. Enter the link-global or link-local IPv6 address in the address bar of your web browser.
3. The format should be:



4. Press **Enter** on the keyboard or click **Refresh** button to refresh the webpage.  
For example:



**NOTE:**

- ▶ If you have a Secondary HTTP port (the default value is 8080), you can also link to the webpage using the following address format: (Please refer to **HTTP** streaming on page 71 for detailed information.)



- ▶ If you choose PPPoE as the Network Type, the [PPP0 address] will be displayed in the IPv6 information column as shown below.

|   |
|---|
| [eth0 address]                                    |
| fe80:0000:0000:0000:0202:d1ff:fe11:2299/64@Link   |
| [ppp0 address]                                    |
| fe80:0000:0000:0000:0202:d1ff:fe11:2299/10@Link   |
| 2001:b100:01c0:0002:0202:d1ff:fe11:2299/64@Global |
| [Gateway]   |
| fe80::90:1a00:4142:8ced                           |
| [DNS]   |
| 2001:b000::1                                      |

**Manually setup the IP address:** Select this option to manually configure IPv6 settings if your network environment does not have DHCPv6 server and router advertisements-enabled routers. If you check this item, the following blanks will be displayed for you to enter the corresponding information:

Enable IPv6

IPv6 information

Manually setup the IP address

Optional IP address / Prefix length  / 64

Optional default router

Optional primary DNS

**Port**

**port**

HTTPS port:

Two way audio port:

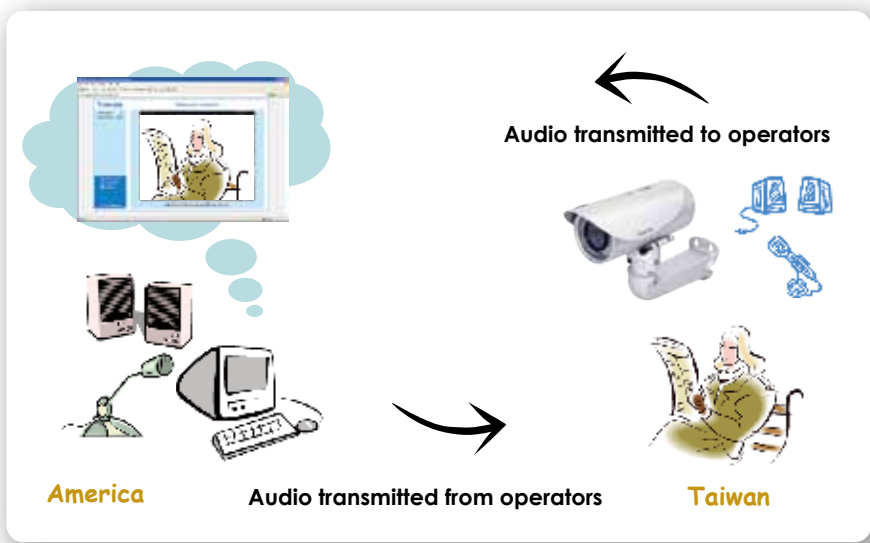
FTP port:

HTTPS port: By default, the HTTPS port is set to 443. It can also be assigned to another port number between 1025 and 65535.

Two way audio port: By default, the two way audio port is set to 5060. Also, it can also be assigned to another port number between 1025 and 65535.





The Network Camera supports two way audio communication so that operators can transmit and receive audio simultaneously. By using the Network Camera’s built-in or external microphone and an external speaker, you can communicate with people around the Network Camera.

Note that as JPEG only transmits a series of JPEG images to the client, to enable the two-way audio function, make sure the video mode is set to “MPEG-4” or “H.264” on the Media > Video > Stream settings page and the media option is set to “Media > Video > Stream settings” on the Client Settings page. Please refer to Client Settings on page 31 and Stream settings on page 58.



Audio is being transmitted to the Network Camera



Click  to enable audio transmission to the Network Camera; click  to adjust the volume of microphone; click  to turn off the audio. To stop talking, click  again.

**FTP port:** The FTP server allows the user to save recorded video clips. You can utilize VIVOTEK's Installation Wizard 2 to upgrade the firmware via FTP server. By default, the FTP port is set to 21. It also can be assigned to another port number between 1025 and 65535.

## Network > Streaming protocols

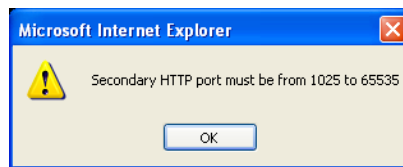
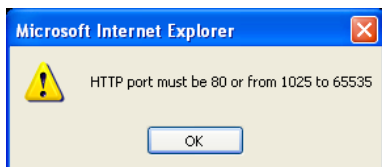
### HTTP streaming

To utilize HTTP authentication, make sure that you have set a password for the Network Camera first; please refer to Security > User account on page 81 for details.

**Authentication:** Depending on your network security requirements, the Network Camera provides two types of security settings for an HTTP transaction: basic and digest.

If **basic** authentication is selected, the password is sent in plain text format and there can be potential risks of being intercepted. If **digest** authentication is selected, user credentials are encrypted using MD5 algorithm and thus provide better protection against unauthorized accesses.

**HTTP port / Secondary HTTP port:** By default, the HTTP port is set to 80 and the secondary HTTP port is set to 8080. They can also be assigned to another port number between 1025 and 65535. If the ports are incorrectly assigned, the following warning messages will be displayed:



To access the Network Camera on the LAN, both the HTTP port and secondary HTTP port can be used to access the Network Camera. For example, when the HTTP port is set to 80 and the secondary HTTP port is set to 8080, refer to the list below for the Network Camera's IP address.

On the LAN

http://192.168.4.160 or  
http://192.168.4.160:8080

**Access name for stream 1 ~ 2:** This Network camera supports multiple streams simultaneously. The access name is used to identify different video streams. Users can click **Media > Video > Stream settings** to set up the video quality of linked streams. For more information about how to set up the video quality, please refer to Stream settings on page 58.

When using **Mozilla Firefox** to access the Network Camera and the video mode is set to JPEG, users will receive video comprised of continuous JPEG images. This technology, known as "server push", allows the Network Camera to feed live pictures to Mozilla Firefox.

URL command -- <http://<ip address>:<http port>/<access name for stream 1~2>>

For example, when the Access name for **stream 2** is set to **video2.mjpg**:

1. Launch Mozilla Firefox or Netscape.
2. Type the above URL command in the address bar. Press **Enter**.
3. The JPEG images will be displayed in your web browser.



**NOTE:**

► *Microsoft® Internet Explorer does not support server push technology; therefore, you will not be able to access a video stream using <http://<ip address>:<http port>/<access name for stream 1~2>>.*

### RTSP Streaming

To utilize RTSP streaming authentication, make sure that you have set a password for controlling the access to video stream first. Please refer to Security > User account on page 81 for details.

HTTP streaming
RTSP streaming

|   |  |
|---|--|
| Authentication:   | <input type="text" value="disable"/>   |
| Access name for stream 1:   | <input type="text" value="live.sdp"/>  |
| Access name for stream 2:   | <input type="text" value="live2.sdp"/> |
| RTSP port:  | <input type="text" value="554"/>       |
| RTP port for video:   | <input type="text" value="5556"/>      |
| RTCP port for video:  | <input type="text" value="5557"/>      |
| RTP port for audio:   | <input type="text" value="5558"/>      |
| RTCP port for audio:  | <input type="text" value="5559"/>      |
| <p>✦ Multicast settings for stream 1</p> <p>✦ Multicast settings for stream 2</p> |  |



**Authentication:** Depending on your network security requirements, the Network Camera provides three types of security settings for streaming via RTSP protocol: disable, basic, and digest. If **basic** authentication is selected, the password is sent in plain text format, but there can be potential risks of it being intercepted. If **digest** authentication is selected, user credentials are encrypted using MD5 algorithm, thus providing better protection against unauthorized access. The availability of the RTSP streaming for the three authentication modes is listed below:

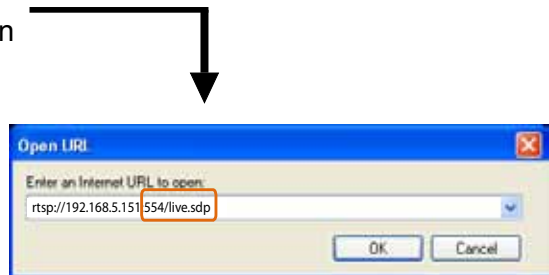
|         | Quick Time player | VLC |
|---------|-------------------|-----|
| Disable | O                 | O   |
| Basic   | O                 | O   |
| Digest  | O                 | X   |

**Access name for stream 1 ~ 2:** This Network camera supports multiple streams simultaneously. The access name is used to differentiate the streaming source.

If you want to use an **RTSP player** to access the Network Camera, you have to set the video mode to **H.264** and use the following RTSP URL command to request transmission of the streaming data. **rtsp://<ip address>:<rtsp port>/<access name for stream 1 to 2>**

For example, when the access name for **stream 1** is set to **live.sdp**:

1. Launch an RTSP player.
2. Choose File > Open URL. A URL dialog box will pop up.
3. Type the above URL command in the text box.
4. The live video will be displayed in your player as shown below.

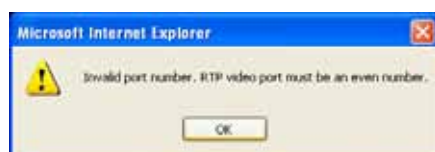


**RTSP port /RTP port for video and RTCP port for video**

- RTSP (Real-Time Streaming Protocol) controls the delivery of streaming media. By default, the port number is set to 554.
- The RTP (Real-time Transport Protocol) is used to deliver video data to the clients. By default, the RTP port for video is set to 5556.
- The RTCP (Real-time Transport Control Protocol) allows the Network Camera to transmit the data by monitoring the Internet traffic volume. By default, the RTCP port for video is set to 5557.

The ports can be changed to values between 1025 and 65535. The RTP port must be an even number and the RTCP port is the RTP port number plus one, and thus is always an odd number. When the RTP port changes, the RTCP port will change accordingly.

If the RTP ports are incorrectly assigned, the following warning message will be displayed:



**Multicast settings for stream 1 ~ 2:** Click the items to display the detailed configuration information. Select the Always multicast option to enable multicast for stream 1 ~ 2.

▼ Multicast settings for stream 1

Always multicast

Multicast group address:

Multicast video port:

Multicast RTCP video port:

Multicast audio port:

Multicast RTCP audio port:

Multicast TTL [1~255]:

▼ Multicast settings for stream 2

Always multicast

Multicast group address:

Multicast video port:

Multicast RTCP video port:

Multicast audio port:

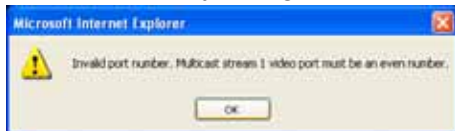
Multicast RTCP audio port:

Multicast TTL [1~255]:

Unicast video transmission delivers a stream through point-to-point transmission; multicast, on the other hand, sends a stream to the multicast group address and allows multiple clients to acquire the stream at the same time by requesting a copy from the multicast group address. Therefore, enabling multicast can effectively save Internet bandwidth.

The ports can be changed to values between 1025 and 65535. The multicast RTP port must be an even number and the multicast RTCP port number is the multicast RTP port number plus one, and thus is always odd. When the multicast RTP port changes, the multicast RTCP port will change accordingly.

If the multicast RTP video ports are incorrectly assigned, the following warning message will be displayed:



**Multicast TTL [1~255]:** The multicast TTL (Time To Live) is the value that tells the router the range a packet can be forwarded.

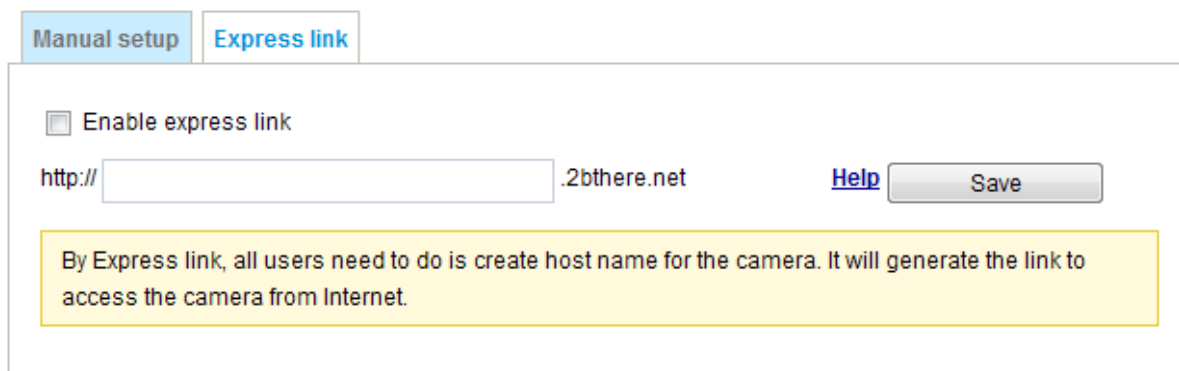
| Initial TTL | Scope                             |
|-------------|-----------------------------------|
| 0           | Restricted to the same host       |
| 1           | Restricted to the same subnetwork |
| 32          | Restricted to the same site       |
| 64          | Restricted to the same region     |
| 128         | Restricted to the same continent  |
| 255         | Unrestricted in scope             |

## Network > DDNS

This section explains how to configure the dynamic domain name service for the Network Camera. DDNS is a service that allows your Network Camera, especially when assigned with a dynamic IP address, to have a fixed host and domain name.

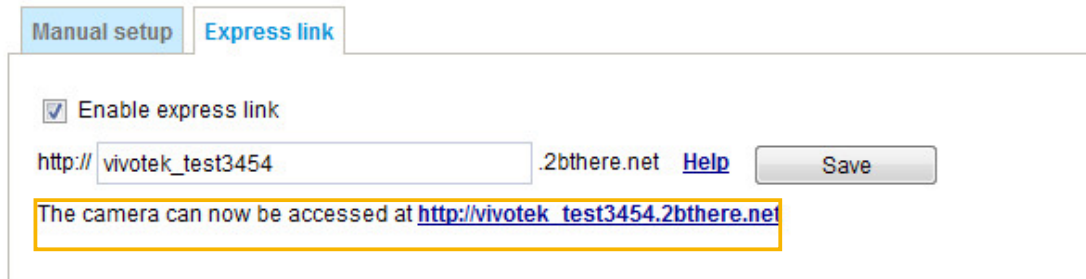
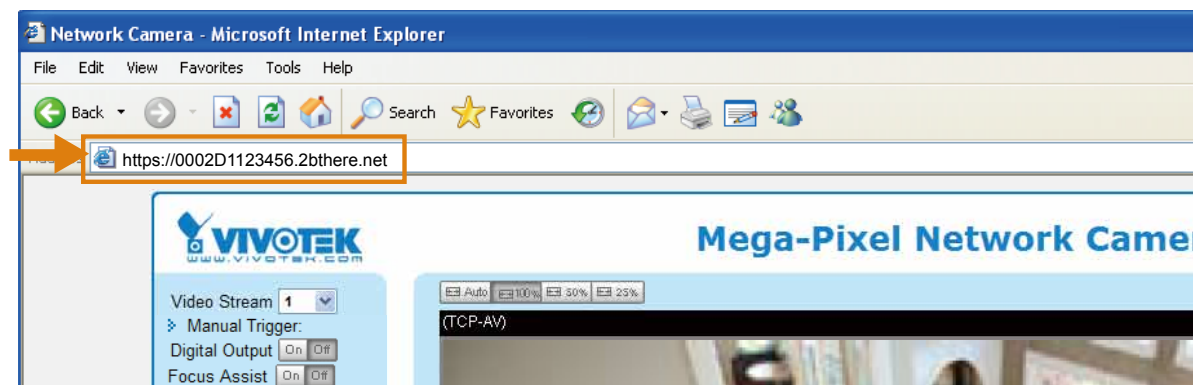
### Express link

Express Link is a free service provided by VIVOTEK server, which allows users to register a domain name for a network device. One URL can only be mapped to one MAC address. This service will examine if the host name is valid and automatically open a port on your router. If using DDNS, the user has to manually configure UPnP port forwarding. Express Link is more convenient and easier to set up.



Please follow the steps below to enable Express Link:

1. Make sure that your router supports UPnP port forwarding and it is activated.
2. Check **Enable express link**.
3. Enter a host name for the network device and click **Save**. If the host name has been used by another device, a warning message will show up. If the host name is valid, it will display a message as shown below.

## Manual setup

### DDNS: Dynamic domain name service

**DDNS: Dynamic domain name service**

Enable DDNS:

Provider: Dyndns.org(Dynamic) ▼

Host name:

User name:

Password:

**Enable DDNS:** Select this option to enable the DDNS setting.

**Provider:** Select a DDNS provider from the provider drop-down list.

VIVOTEK offers **Safe100.net**, a free dynamic domain name service, to VIVOTEK customers. It is recommended that you register **Safe100.net** to access VIVOTEK's Network Cameras from the Internet. Additionally, we offer other DDNS providers, such as Dyndns.org(Dynamic), Dyndns.org(Custom), CustomSafe100, and dyn-interfree.it. Note that before utilizing this function, please apply for a dynamic domain account first.

#### ■ Safe100.net

- In the DDNS column, select **Safe100.net** from the drop-down list. Click **I accept** after reviewing the terms of the Service Agreement.
- In the Register column, fill in the Host name (xxxx.safe100.net), Email, Key, and Confirm Key, and click **Register**. After a host name has been successfully created, a success message will be displayed in the DDNS Registration Result column.

**Register**

Host name: WTK.safe100.net

Email: wtk@vivotek.com

Key: ••••

Confirm key: ••••

To apply for a domain name for the camera, or to modify the previously registered information, fill in the following fields and then click "Register".

DDNS Registration Result:

[Register] Successfully Your account information has been mailed to registered e-mail address

Upon successful registration, you can click copy to automatically upload relevant information to the DDNS form or you can manually fill it in. Then, click "Save" to save new settings.

- Click **Copy** and all the registered information will automatically be uploaded to the corresponding fields in the DDNS column at the top of the page as seen in the picture.

**DDNS: Dynamic domain name service**

Enable DDNS:

Provider:  [\*.safe100.net]

Host name:

Email:

Key:

---

**Register**

Host name:

Email:

Key:

Confirm key:

To apply for a domain name for the camera, or to modify the previously registered information, fill in the following fields and then click "Register".

DDNS Registration Result:

Upon successful registration, you can click [copy](#) to automatically upload relevant information to the DDNS form or you can manually fill it in. Then, click "Save" to save new settings.

4. Select Enable DDNS and click **Save** to enable the setting.

#### ■ CustomSafe100

VIVOTEK offers documents to establish a CustomSafe100 DDNS server for distributors and system integrators. You can use CustomSafe100 to register a dynamic domain name if your distributor or system integrators offer such services.

1. In the DDNS column, select CustomSafe100 from the drop-down list.
2. In the Register column, fill in the Host name, Server name, Email, Key, and Confirm Key; then click **Register**.

Enter "ns1.safe100.net" as the Server name.

After a host name has been successfully created, you will see a success message in the DDNS Registration Result column.

3. Click **Copy** and all for the registered information will be uploaded to the corresponding fields in the DDNS column.
4. Select Enable DDNS and click **Save** to enable the setting.

**Forget key:** Click this button if you have forgotten the key to Safe100.net or CustomSafe100. Your account information will be sent to your email address.

Refer to the following links to apply for a dynamic domain account when selecting other DDNS providers:

- [Dyndns.org\(Dynamic\)](http://www.dyndns.com/) / [Dyndns.org\(Custom\)](http://www.dyndns.com/): visit <http://www.dyndns.com/>

## Network > QoS (Quality of Service)

Quality of Service refers to a resource reservation control mechanism, which guarantees a certain quality to different services on the network. Quality of service guarantees are important if the network capacity is insufficient, especially for real-time streaming multimedia applications. Quality can be defined as, for instance, a maintained level of bit rate, low latency, no packet dropping, etc.

The following are the main benefits of a QoS-aware network:

- The ability to prioritize traffic and guarantee a certain level of performance to the data flow.
- The ability to control the amount of bandwidth each application may use, and thus provide higher reliability and stability on the network.

### Requirements for QoS

To utilize QoS in a network environment, the following requirements must be met:

- All network switches and routers in the network must include support for QoS.
- The network video devices used in the network must be QoS-enabled.

### QoS models

#### CoS (the VLAN 802.1p model)

IEEE802.1p defines a QoS model at OSI Layer 2 (Data Link Layer), which is called CoS, Class of Service. It adds a 3-bit value to the VLAN MAC header, which indicates the frame priority level from 0 (lowest) to 7 (highest). The priority is set up on the network switches, which then use different queuing disciplines to forward the packets.

Below is the setting column for CoS. Enter the **VLAN ID** of your switch (0~4095) and choose the priority for each application (0~7).

**CoS**

Enable CoS

|              |   |
|--------------|---|
| VLAN ID:     | <input style="width: 50px;" type="text" value="1"/>   |
| Live video:  | <input style="width: 50px;" type="text" value="0"/> ▼ |
| Live audio:  | <input style="width: 50px;" type="text" value="0"/> ▼ |
| Event/Alarm: | <input style="width: 50px;" type="text" value="0"/> ▼ |
| Management:  | <input style="width: 50px;" type="text" value="0"/> ▼ |

If you assign Video the highest level, the switch will handle video packets first.



#### NOTE:

- ▶ A VLAN Switch (802.1p) is required. Web browsing may fail if the CoS setting is incorrect.
- ▶ The Class of Service technologies do not guarantee a level of service in terms of bandwidth and delivery time; they offer a "best-effort." Users can think of CoS as "coarsely-grained" traffic control and QoS as "finely-grained" traffic control.
- ▶ Although CoS is simple to manage, it lacks scalability and does not offer end-to-end guarantees since it is based on L2 protocol.

### QoS/DSCP (the DiffServ model)

DSCP-ECN defines QoS at Layer 3 (Network Layer). The Differentiated Services (DiffServ) model is based on packet marking and router queuing disciplines. The marking is done by adding a field to the IP header, called the DSCP (Differentiated Services Codepoint). This is a 6-bit field that provides 64 different class IDs. It gives an indication of how a given packet is to be forwarded, known as the Per Hop Behavior (PHB). The PHB describes a particular service level in terms of bandwidth, queueing theory, and dropping (discarding the packet) decisions. Routers at each network node classify packets according to their DSCP value and give them a particular forwarding treatment; for example, how much bandwidth to reserve for it.

Below are the setting options of DSCP (DiffServ Codepoint). Specify the DSCP value for each application (0~63).

#### QoS/DSCP

Enable QoS/DSCP

|              |                                |
|--------------|--------------------------------|
| Live video:  | <input type="text" value="0"/> |
| Live audio:  | <input type="text" value="0"/> |
| Event/Alarm: | <input type="text" value="0"/> |
| Management:  | <input type="text" value="0"/> |

## Network > SNMP (Simple Network Management Protocol)

This section explains how to use the SNMP on the network camera. The Simple Network Management Protocol is an application layer protocol that facilitates the exchange of management information between network devices. It helps network administrators to remotely manage network devices and find, solve network problems with ease.

- The SNMP consists of the following three key components:
  1. Manager: Network-management station (NMS), a server which executes applications that monitor and control managed devices.
  2. Agent: A network-management software module on a managed device which transfers the status of managed devices to the NMS.
  3. Managed device: A network node on a managed network. For example: routers, switches, bridges, hubs, computer hosts, printers, IP telephones, network cameras, web server, and database.

Before configuring SNMP settings on the this page, please enable your NMS first.

### SNMP Configuration

#### Enable SNMPv1, SNMPv2c

Select this option and enter the names of Read/Write community and Read Only community according to your NMS settings.

Enable SNMPv1, SNMPv2c

**SNMPv1, SNMPv2c Settings**

Read/Write community:

Read only community:

#### Enable SNMPv3

This option contains cryptographic security, a higher security level, which allows you to set the Authentication password and the Encryption password.

- Security name: According to your NMS settings, choose Read/Write or Read Only and enter the community name.
- Authentication type: Select MD5 or SHA as the authentication method.
- Authentication password: Enter the password for authentication (at least 8 characters).
- Encryption password: Enter a password for encryption (at least 8 characters).

Enable SNMPv3

**SNMPv3 Settings**

Read/Write Security name:

Authentication Type:

Authentication Password:

Encryption Password:

Read only Security name:

Authentication Type:

Authentication Password:

Encryption Password:



## Security > User Account

This section explains how to enable password protection and create multiple accounts.

### Root Password

**Root password**

Root password:

Confirm root password:

The administrator account name is “root”, which is permanent and can not be deleted. If you want to add more accounts in the Manage User column, please apply the password for the “root” account first.

1. Type the password identically in both text boxes, then click **Save** to enable password protection.
2. A window will be prompted for authentication; type the correct user’s name and password in their respective fields to access the Network Camera.

### Privilege Management

Allow anonymous viewing

Operator:  Digital output  PTZ control

Viewer:  Digital output  PTZ control

**Digital Output & PTZ control:** You can modify the manage privilege of operators or viewers. Check or uncheck the item, then click **Save** to enable the settings. If you give Viewers the privilege, Operators will also have the ability to control the Network Camera through the main page. (Please refer to Configuration on page 35).

**Allow anonymous viewing:** If you check this item, any client can access the live stream without entering a User ID and Password.

### Manage User

**Manage user**

Existing user name:

User name:

User password:

Confirm user password:

Privilege:

Administrators can add up to 20 user accounts.

1. Input the new user’s name and password.
2. Select the privilege level for the new user account. Click **Add** to enable the setting.

Access rights are sorted by user privilege (Administrator, Operator, and Viewer). Only administrators can access the Configuration page. Though operators cannot access the Configuration page, they can use the URL Commands to get and set the value of parameters. For more information, please refer to URL Commands of the Network Camera on page 129. Viewers access only the main page for live viewing.

Here you also can change a user’s access rights or delete user accounts.

1. Select an existing account to modify.
2. Make necessary changes and click **Update** or **Delete** to enable the setting.

## Security > HTTPS (Hypertext Transfer Protocol over SSL)

This section explains how to enable authentication and encrypted communication over SSL (Secure Socket Layer). It helps protect streaming data transmission over the Internet on higher security level.

### Create and Install Certificate Method

Before using HTTPS for communication with the Network Camera, a **Certificate** must be created first. There are three ways to create and install a certificate:

#### Create self-signed certificate

1. Select this option from a pull-down menu.
2. In the first column, select **Enable HTTPS secure connection**, then select a connection option: "HTTP & HTTPS" or "HTTPS only".
3. Click **Create certificate** to generate a certificate.

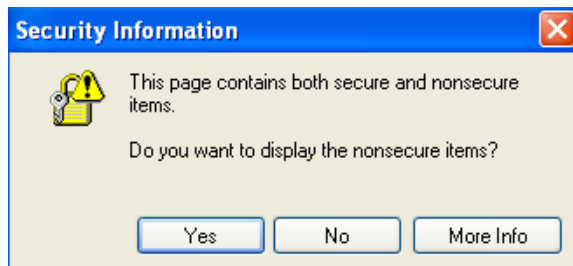
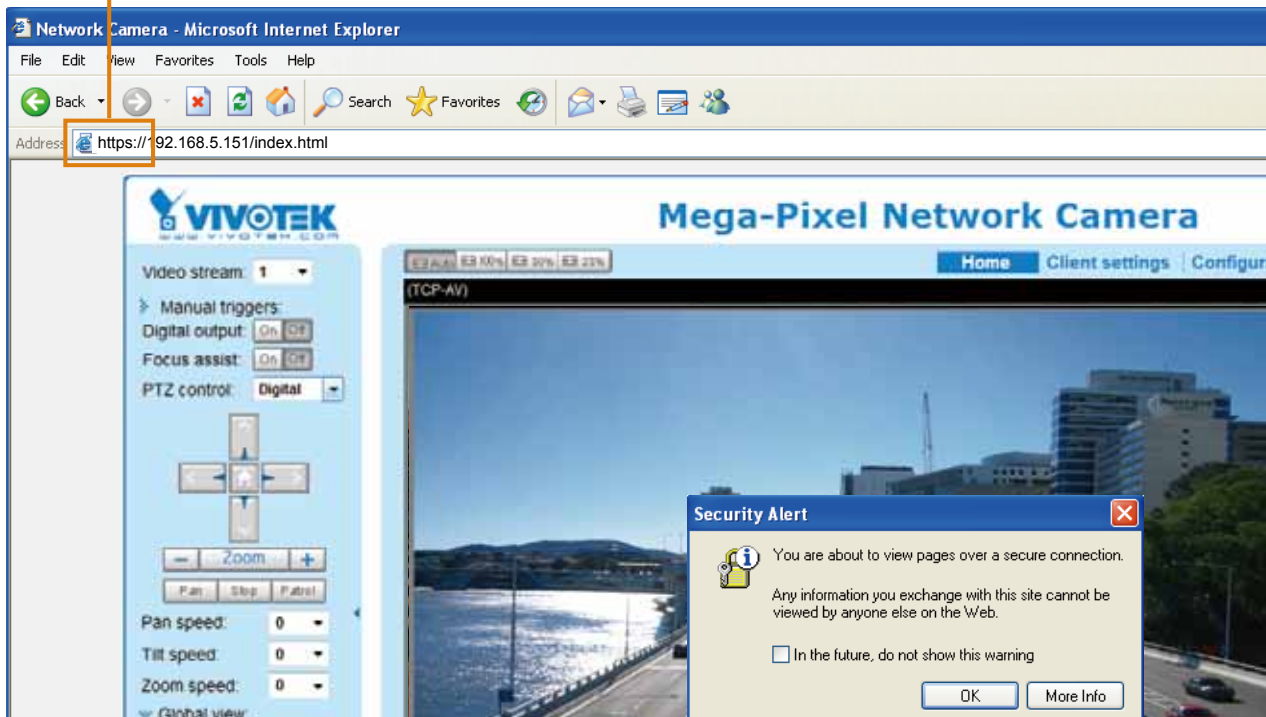
The screenshot shows the 'HTTPS' configuration page. The 'Enable HTTPS secure connection' checkbox is checked. Under 'Mode', 'HTTP & HTTPS' is selected. Under 'Certificate', the 'Certificate information' section is expanded, showing fields for Country (TW), State or province (Asia), Locality (Asia), Organization (VIVOTEK, Inc), Organization unit (VIVOTEK, Inc), Common name (www.vivotek.com), and Validity (3650 days). A message box says 'Please wait while the certificate is being generated...' with a progress bar. The 'Create certificate' button is highlighted with a yellow box.

4. The Certificate Information will automatically be displayed as shown below. You can click **Certificate properties** to view detailed information about the certificate.

The screenshot shows the 'Certificate information' panel. The status is 'Active'. The method is 'Create self-signed certificate'. The fields are: Country: TW, State or province: Asia, Locality: Asia, Organization: VIVOTEK, Inc, Organization unit: VIVOTEK, Inc, Common name: www.vivotek.com. At the bottom, there are two buttons: 'Certificate properties' and 'Remove certificate'.

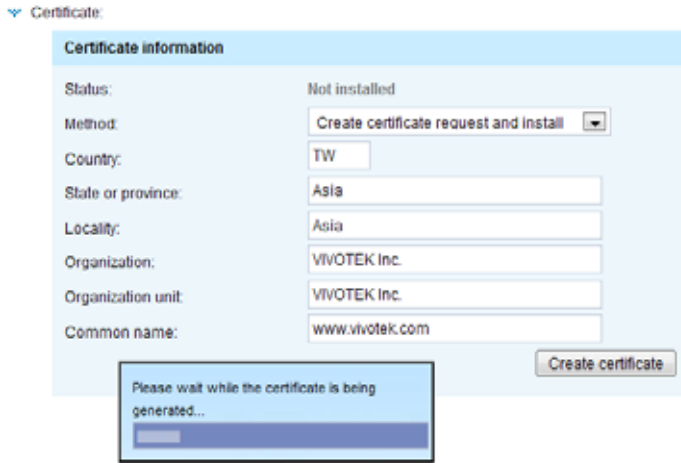
5. Click **Save** to preserve your configuration, and your current session with the camera will change to the encrypted connection.
6. If your web session does not automatically change to an encrypted HTTPS session, click **Home** to return to the main page. Change the URL address from “<http://>” to “<https://>” in the address bar and press **Enter** on your keyboard. Some Security Alert dialogs will pop up. Click **OK** or **Yes** to enable HTTPS.

**https://**

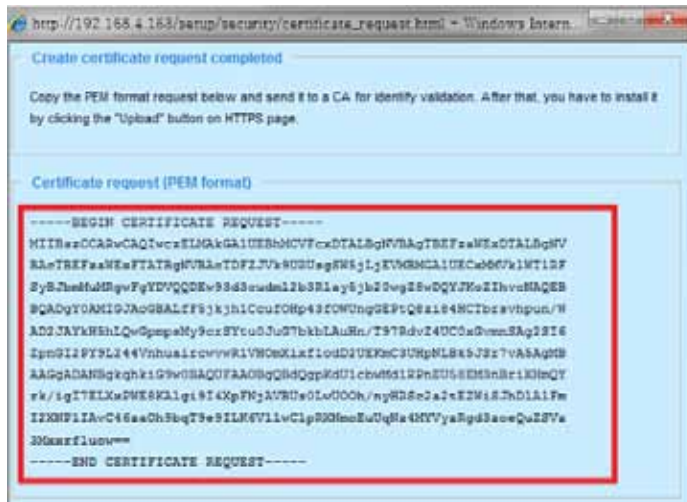


### Create certificate request and install

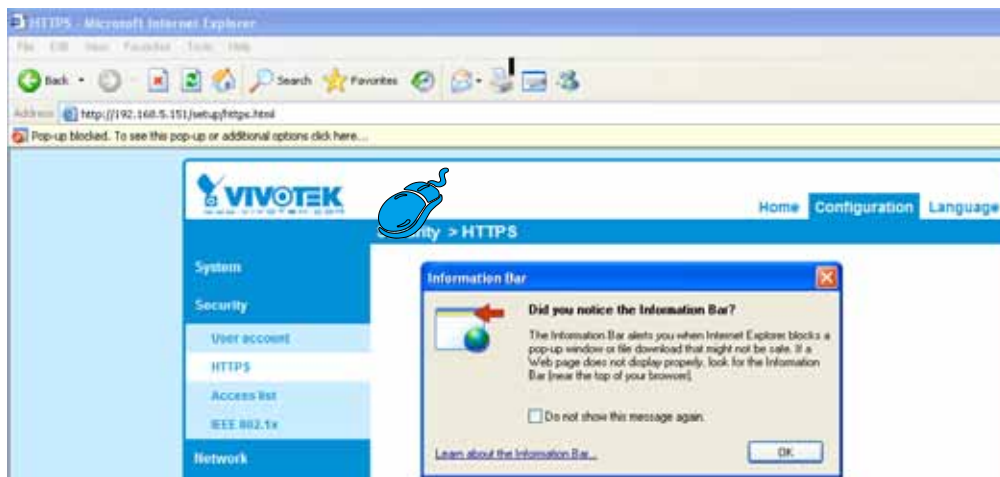
1. Select the option from the **Method** pull-down menu.
2. Click **Create certificate** to proceed.
3. The following information will show up in a pop-up window after clicking **Create**. Then click **Save** to generate the certificate request.



4. The Certificate request window will prompt.

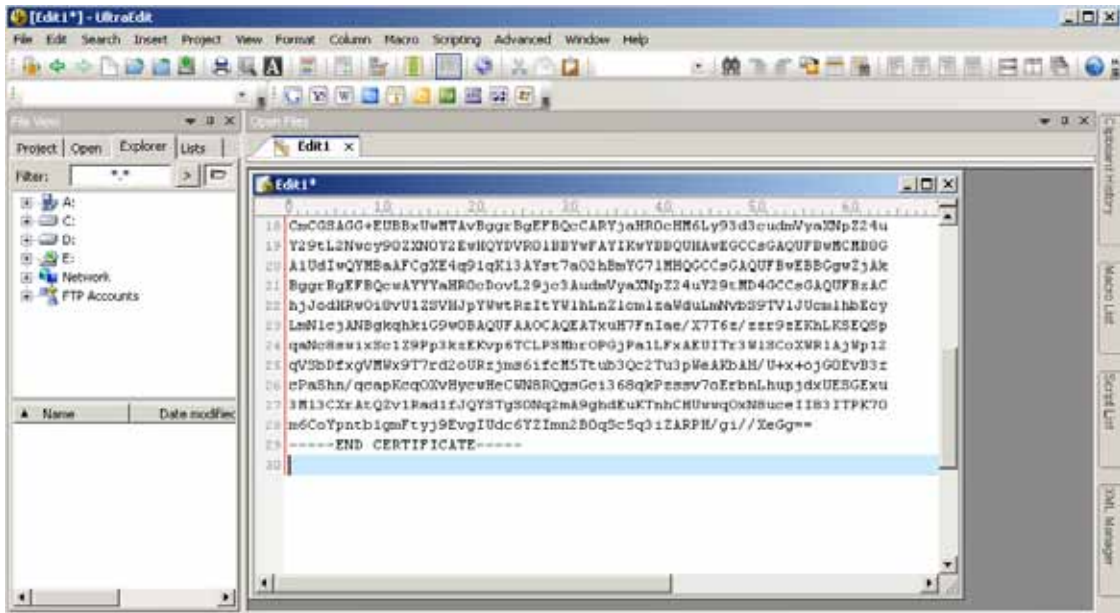


If you see the following Information bar, click **OK** and click on the Information bar at the top of the page to allow pop-ups.

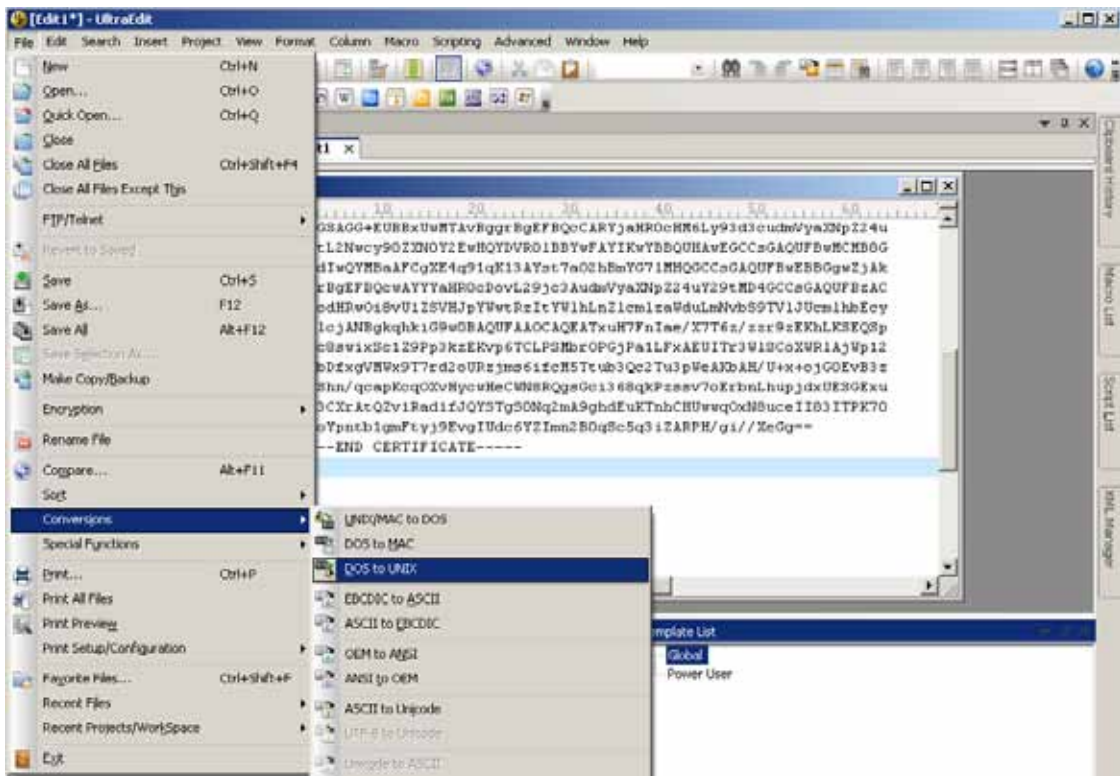




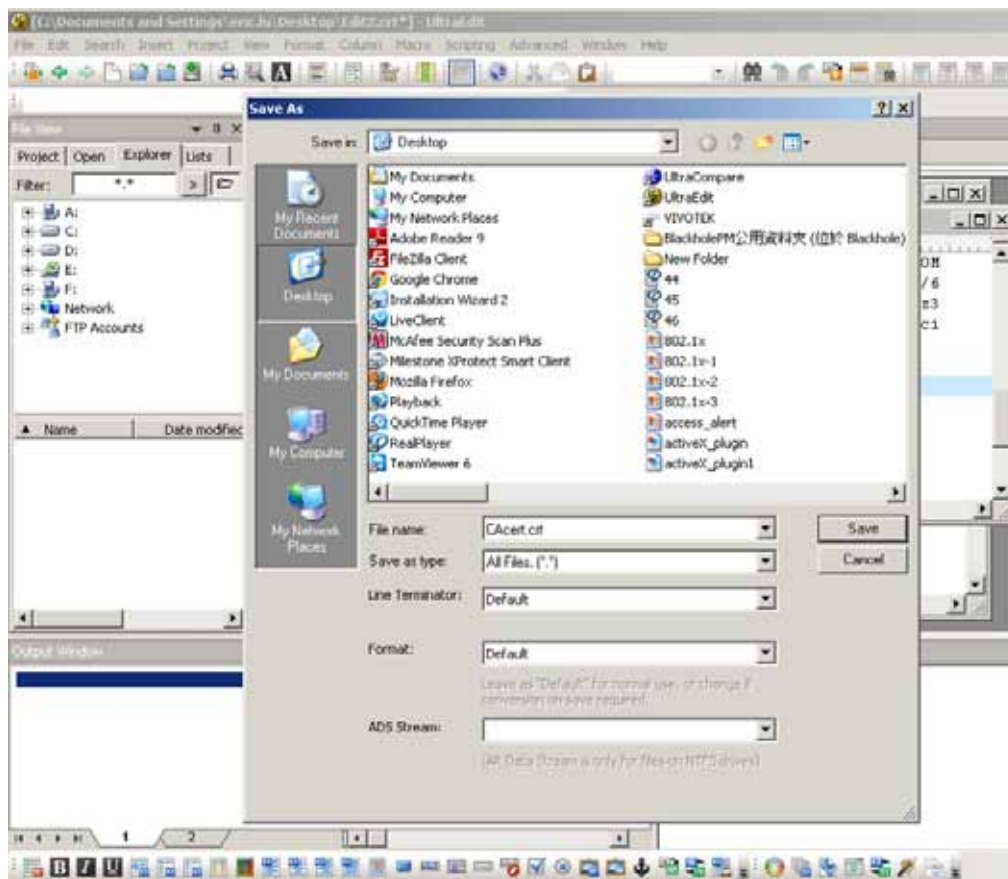
- Open a new edit, paste the certificate contents, and press ENTER at the end of the contents to add an empty line.



- Convert file format from DOS to UNIX. Open **File** menu > **Conversions** > **DOS to Unix**.



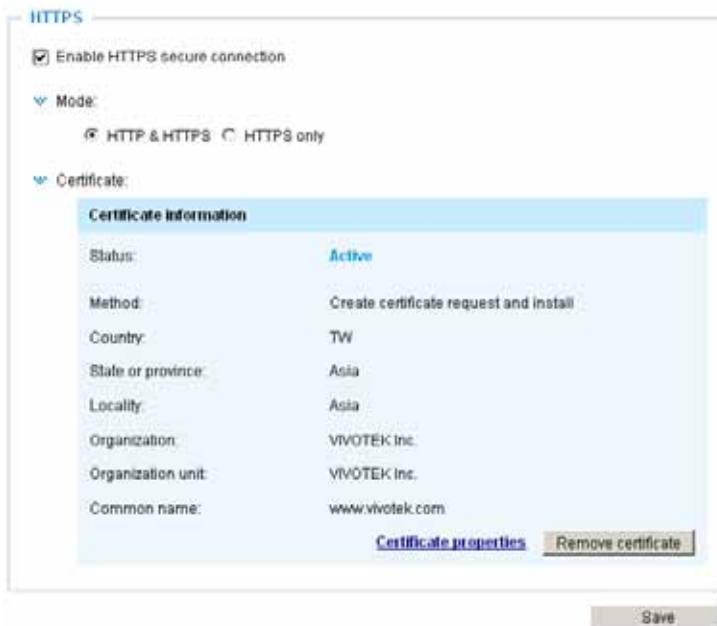
9. Save the edit using the “.crt” extension, using a file name like “CAcert.crt.”



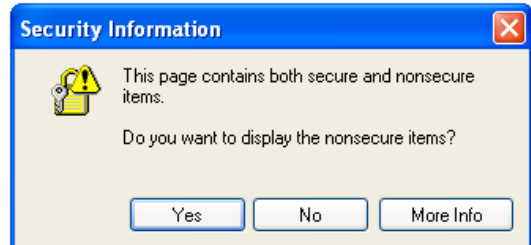
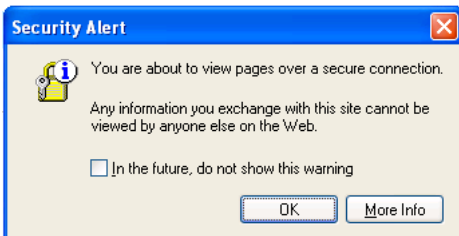
10. Return to the original firmware session, use the **Browse** button to locate the crt certificate file, and click **Upload** to enable the certification.



11. When the certificate file is successfully loaded, its status will be stated as **Active**. Note that a certificate must have been created and installed before you can click on the **“Save”** button for the configuration to take effect.



12. To begin an encrypted HTTPS session, click **Home** to return to the main page. Change the URL address from **“http://”** to **“https://”** in the address bar and press **Enter** on your keyboard. Some Security Alert dialogs will pop up. Click **OK** or **Yes** to enable HTTPS.





## Security > Access List

This section explains how to control access permission by verifying the client PC's IP address.

### General Settings



Maximum number of concurrent streaming connection(s) limited to: Simultaneous live viewing for 1~10 clients (including stream 1 and stream 2). The default value is 10. If you modify the value and click **Save**, all current connections will be disconnected and automatically attempt to re-link (IE Explore or Quick Time Player).

Connection management: Click this button to display the connection status window showing a list of the current connections. For example:

|                          | IP address    | Elapsed time | User ID |
|--------------------------|---------------|--------------|---------|
| <input type="checkbox"/> | 172.16.2.53   | 00:00:05     |         |
| <input type="checkbox"/> | 192.168.4.104 | 01:49:35     |         |

Refresh   Add to deny list   Disconnect   Close

Note that only consoles that are currently displaying live streaming will be listed in the Connection management list.

- IP address: Current connections to the Network Camera.
- Elapsed time: How much time the client has been at the webpage.
- User ID: If the administrator has set a password for the webpage, the clients have to enter a user name and password to access the live video. The user name will be displayed in the User ID column. If the administrator allows clients to link to the webpage without a user name and password, the User ID column will be empty.

There are some situations that allow clients access to the live video without a user name and password:

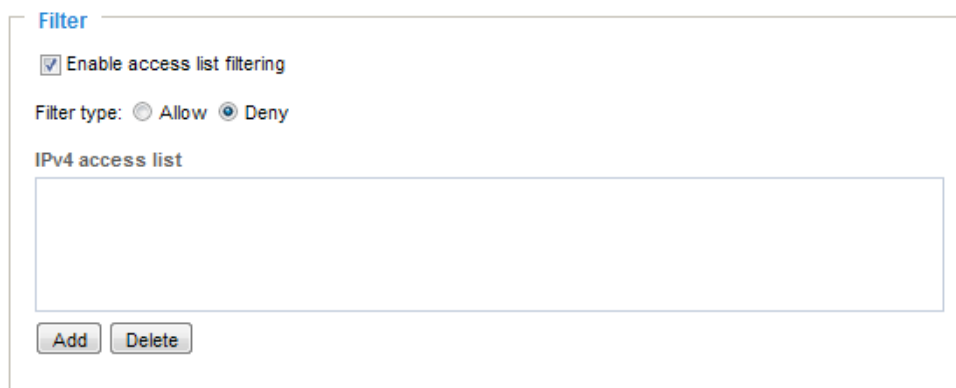
1. The administrator does not set up a root password. For more information about how to set up a root password and manage user accounts, please refer to Security > User account on page 81.
2. The administrator has set up a root password, but set **RTSP Authentication** to "disable". For more information about **RTSP Authentication**, please refer to RTSP Streaming on page 72.
3. The administrator has set up a root password, but allows anonymous viewing. For more information about **Allow Anonymous Viewing**, please refer to page 81.

- **Refresh:** Click this button to refresh all current connections.
- **Add to deny list:** You can select entries from the Connection Status list and add them to the Deny List to deny access. Please note that those checked connections will only be disconnected temporarily and will automatically try to re-link again (IE Explore or Quick Time Player). If you want to enable the denied list, please check **Enable access list filtering** and click **Save** in the first column.
- **Disconnect:** If you want to break off the current connections, please select them and click this button. Please note that those checked connections will only be disconnected temporarily and will automatically try to re-link again (IE Explore or Quick Time Player).

**Enable access list filtering:** Check this item and click **Save** if you want to enable the access list filtering function.

## Filter

**Filter type:** Select **Allow** or **Deny** as the filter type. If you choose **Allow Type**, only those clients whose IP addresses are on the Access List below can access the Network Camera, and the others cannot access. On the contrary, if you choose **Deny Type**, those clients whose IP addresses are on the Access List below will not be allowed to access the Network Camera, and the others can access.



The screenshot shows a configuration window titled "Filter". It contains the following elements:

- A checked checkbox labeled "Enable access list filtering".
- A "Filter type:" label with two radio buttons: "Allow" (unselected) and "Deny" (selected).
- A label "IPv4 access list" above a large empty rectangular text area.
- Two buttons at the bottom: "Add" and "Delete".

Then you can **Add** a rule to the following Access List. Please note that the IPv6 access list column will not be displayed unless you enable IPv6 on the Network page. For more information about **IPv6 Settings**, please refer to Network > General settings on page 63 for detailed information.

There are three types of rules:

**Single:** This rule allows the user to add an IP address to the Allowed/Denied list.

For example:

**Network:** This rule allows the user to assign a network address and corresponding subnet mask to the Allow/Deny List. The address and network mask are written in CIDR format.

For example:

IP address 192.168.2.x will be blocked.

If IPv6 filter is preferred, you will be prompted by the following window. Enter the IPv6 address and the two-digit prefix length to specify the range of IP addresses in your configuration.

**Range:** This rule allows the user to assign a range of IP addresses to the Allow/Deny List.

Note: This rule is only applied to IPv4.

For example:

### Administrator IP address

**Always allow the IP address to access this device:** You can check this item and add the Administrator's IP address in this field to make sure the Administrator can always connect to the device.

## Security > IEEE 802.1X

Enable this function if your network environment uses IEEE 802.1x, which is a port-based network access control. The network devices, intermediary switch/access point/hub, and RADIUS server must support and enable 802.1x settings.

The 802.1x standard is designed to enhance the security of local area networks, which provides authentication to network devices (clients) attached to a network port (wired or wireless). If all certificates between client and server are verified, a point-to-point connection will be enabled; if authentication fails, access on that port will be prohibited. 802.1x utilizes an existing protocol, the Extensible Authentication Protocol (EAP), to facilitate communication.

■ The components of a protected network with 802.1x authentication:



1. Supplicant: A client end user (camera), which requests authentication.
2. Authenticator (an access point or a switch): A “go between” which restricts unauthorized end users from communicating with the authentication server.
3. Authentication server (usually a RADIUS server): Checks the client certificate and decides whether to accept the end user’s access request.

■ VIVOTEK Network Cameras support two types of EAP methods to perform authentication: **EAP-PEAP** and **EAP-TLS**.

Please follow the steps below to enable 802.1x settings:

1. Before connecting the Network Camera to the protected network with 802.1x, please apply a digital certificate from a Certificate Authority (i.e., your network administrator) which can be validated by a RADIUS server.
2. Connect the Network Camera to a PC or notebook outside of the protected LAN. Open the configuration page of the Network Camera as shown below. Select **EAP-PEAP** or **EAP-TLS** as the EAP method. In the following blanks, enter your ID and password issued by the CA, then upload related certificate(s).

**IEEE 802.1x**

Enable IEEE 802.1x

EAP method: EAP-PEAP ▼

Identity:

Password:

CA certificate:

Status: no file

**⚠ IMPORTANT**

The maximum length of password is 200 symbols.

**IEEE 802.1x**

Enable 802.1x

EAP method: EAP-TLS

Identity:

Private key password:

CA certificate:

Status: no file

client certificate:

Status: no file

Client private key:

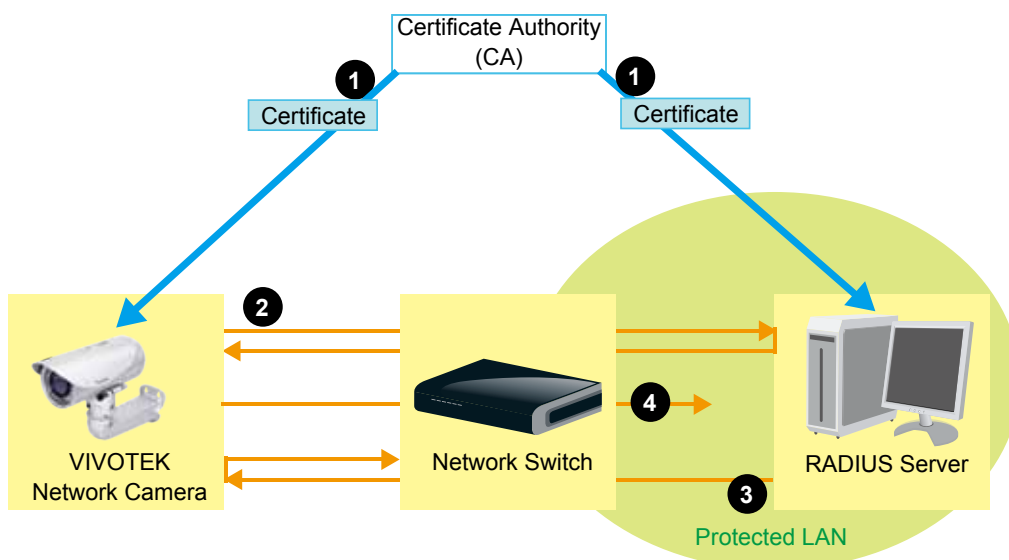
Status: no file

3. When all settings are complete, move the Network Camera to the protected LAN by connecting it to an 802.1x enabled switch. The devices will then start the authentication automatically.

 **NOTE:**

► *The authentication process for 802.1x:*

1. *The Certificate Authority (CA) provides the required signed certificates to the Network Camera (the supplicant) and the RADIUS Server (the authentication server).*
2. *A Network Camera requests access to the protected LAN using 802.1X via a switch (the authenticator). The client offers its identity and client certificate, which is then forwarded by the switch to the RADIUS Server, which uses an algorithm to authenticate the Network Camera and returns an acceptance or rejection back to the switch.*
3. *The switch also forwards the RADIUS Server's certificate to the Network Camera.*
4. *Assuming all certificates are validated, the switch then changes the Network Camera's state to authorized and is allowed access to the protected network via a pre-configured port.*

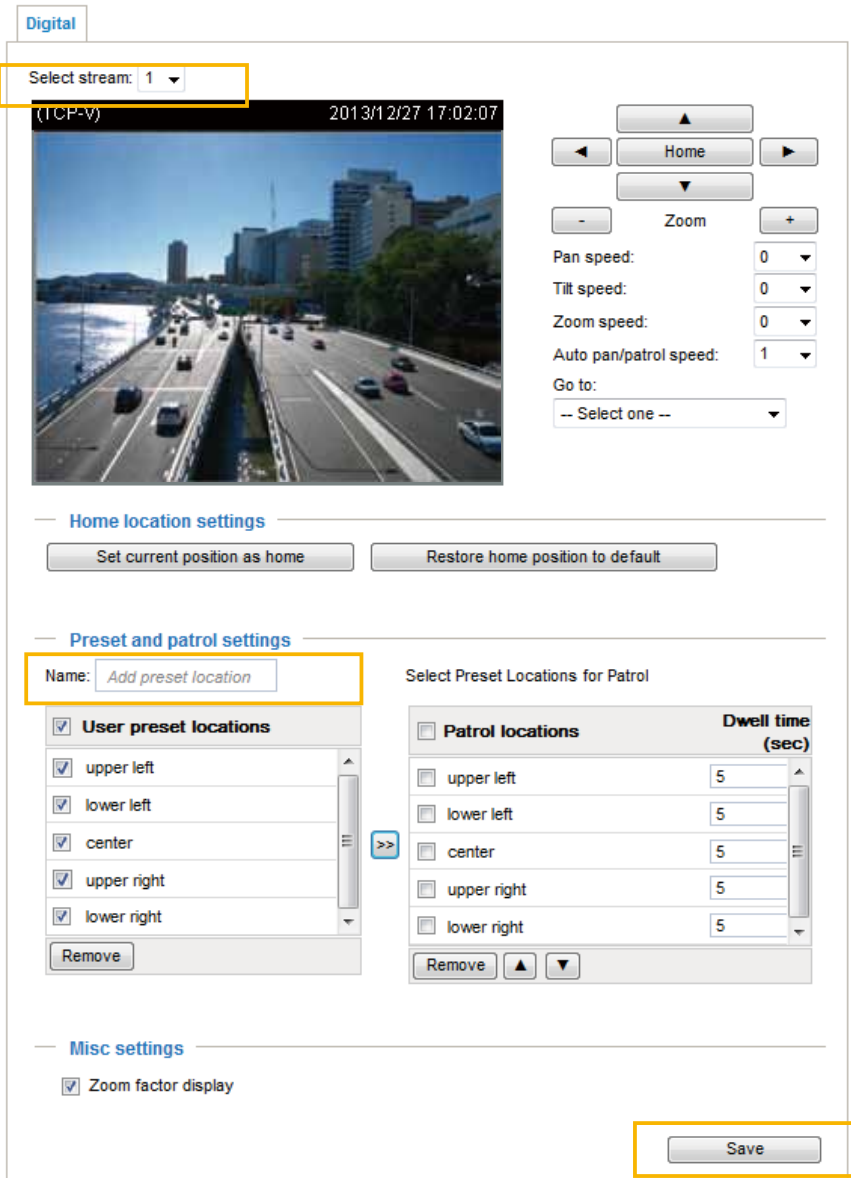


## PTZ > PTZ settings

This section explains how to control the Network Camera’s Pan/Tilt/Zoom operation. The e-PTZ function allows users to quickly move the focus to a target area for close-up viewing without physically moving the camera. Please refer to below for detailed instruction.

### Digital PTZ Operation (E-PTZ Operation)

If you select “Digital”, the e-PTZ control settings section will be displayed as shown below:



**Set current position as home:** If you zoom in on a live view to display only a focused position of the screen, you can use the arrow buttons on the PTZ panel to move the current field of view to a place you preferred, and set it as the home position.

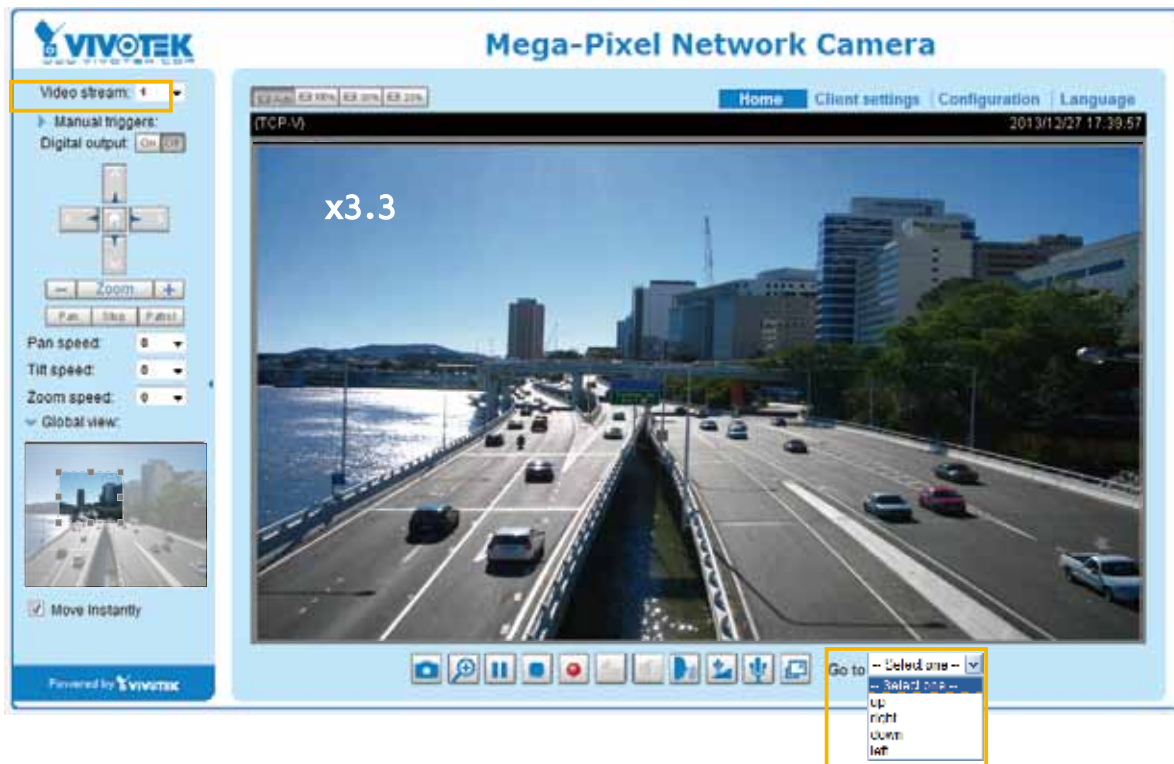
**Restore home position to default:** This button cancels the previous home position, and returns the field of view to the system default (usually the center of FOV).

Select Stream: Select stream #1 to set up the e-PTZ control. Please note that each stream can possess its own preset and patrol settings. For detailed information about how to set up preset and patrol settings, please refer to page 94.

Auto pan/patrol speed: Select the speed from 1~5 (slow/fast) to set up the Auto pan/patrol speed control.

When completed with the e-PTZ settings, click **Save** to enable the settings on this page.

### Home page in E-PTZ Mode



- The e-Preset Positions will also be displayed on the home page. Select one from the drop-down list, and the Network Camera will move to the selected e-preset position.
- If you have set up different e-preset positions for different streams, you can select one of the video streams to display its separate e-preset positions.

### Global View

In addition to using the e-PTZ control panel, you can also use the mouse to drag or resize the floating frame to pan/tilt/zoom the viewing region. The live view window will also move to the viewing region accordingly.

### Moving Instantly

If you check this item, the live view window will switch to the new viewing region instantly after you move the floating frame. If deselected, the process moving from one point to the other will be shown, yet it is not easy to observe if the move is not over a long distance.

### Click on Image

The e-PTZ function also supports "Click on Image". When you click on any point of the Global View Window or Live View Window, the viewing region will also move to that point. Note that the "Click on Image" function only applies when you have configured a smaller "Region of Interest" out of the maximum output frame! e.g., a 800x600 region from the camera's 1280x800 maximum frame size.

Patrol settings


You can select some preset positions for the Network Camera to patrol.  
Please follow the steps below to set up a patrol schedule:

1. Select the preset locations on the list, and click **>>**.
2. The selected preset locations will be displayed on the **Patrol locations** list.
3. Set the **Dwelling time** for the preset location during auto patrol.
4. If you want to delete a preset location from the Patrol locations list, select it and click **Remove**.
5. Select a location and click **▲ ▼** to rearrange the patrol order.
6. Select patrol locations you want to save in the list and click **Save** to enable the patrol settings.
7. To implement the patrol schedule, please go to homepage and click on **Patrol** button. Please refer to the next page.

Digital

Select stream: 1

(HTTP-V) 2013/12/13 17:08:56



▲  
◀ Home ▶  
▼

- Zoom +

Pan speed: 0 ▼  
 Tilt speed: 0 ▼  
 Zoom speed: 0 ▼  
 Auto pan/patrol speed: 1 ▼

Go to: -- Select one -- ▼

---

**Home location settings**

Set current position as home
Restore home position to default

---

**Preset and patrol settings**

Name: Add preset location

**User preset locations**

- upper left
- lower left
- center
- upper right
- lower right

Remove

Select Preset Locations for Patrol 3

**Patrol locations**

- upper left
- lower left
- center
- upper right
- lower right

Remove
▲
▼

**Dwell time (sec)**

|   |
|---|
| 5 |
| 5 |
| 5 |
| 5 |
| 5 |

---

**Misc settings**

Zoom factor display

Save

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## Home page in the e-PTZ Mode

The **Preset positions** will also be displayed on the home page. Select one from the Go to drop-down list, and the Network Camera will move to the selected preset position.

Patrol button: Click this button, then the Network Camera will patrol among the selected preset positions continuously.



### NOTE:

- ▶ The Preset Positions will also be displayed on the home page. Select one from the Go to drop-down list, and the Network Camera will move to the selected preset position.
- ▶ Click Patrol: The Network Camera will patrol along the selected positions repeatedly. Please refer to page 96 to see more details.

## Event > Event settings

This section explains how to configure the Network Camera to respond to particular situations (event). A typical application is that when a motion is detected, the Network Camera sends buffered images to an FTP server or e-mail address as notifications. Click on **Help**, there is an illustration shown in the pop-up window explaining that an event can be triggered by many sources, such as motion detection or external digital input devices. When an event is triggered, you can specify what type of action that will be performed. You can configure the Network Camera to send snapshots or videos to your email address or FTP site.

**Event**

| Name | Status | Sun | Mon | Tue | Wed | Thu | Fri | Sat | Time | Trigger |
|------|--------|-----|-----|-----|-----|-----|-----|-----|------|---------|
|------|--------|-----|-----|-----|-----|-----|-----|-----|------|---------|

[Help](#)

The diagram shows the relationship between Event Trigger and Action. An arrow points from 'Event Trigger' to 'Action (What to do)'. Below 'Event Trigger' are examples: Motion detection, Periodically, Digital input, System boot. From 'Action (What to do)', two arrows branch out to 'Media (What to send)' and 'Server (Where to send)'. Below 'Media (What to send)' are examples: Snapshot, Video Clip, System log, Digital Output. Below 'Server (Where to send)' are examples: Email, FTP, HTTP Server, Network storage.

### Event

To set an event with recorded video or snapshots, it is necessary to configure the server and media settings so that the Network Camera will know what action to take (such as which server to send the media files to) when a trigger is activated. An event is an action initiated by a user-defined trigger source. In the **Event** column, click **Add** to open the event settings window. Here you can arrange three elements -- Schedule, Trigger, and Action to set an event. A total of 3 event settings can be configured.

**Event**

| Name | Status | Sun | Mon | Tue | Wed | Thu | Fri | Sat | Time | Trigger |
|------|--------|-----|-----|-----|-----|-----|-----|-----|------|---------|
|------|--------|-----|-----|-----|-----|-----|-----|-----|------|---------|

[Help](#)

The screenshot shows the 'Event Settings' dialog box. It includes fields for 'Event name', 'Enable this event' (checkbox), 'Priority' (Normal), and 'Detect next motion detection or digital input after' (10 seconds). The 'Event Schedule' section has checkboxes for all days of the week (Sun-Sat) and a 'Time' section with 'Always' selected and 'From 00:00 to 24:00 [hh:mm]' option. A sidebar on the left shows a flowchart with three steps: 1. Schedule, 2. Trigger, and 3. Action, with arrows indicating a sequential process. 'Close' and 'Save event' buttons are at the bottom.

- **Event name:** Enter a name for the event setting.
- **Enable this event:** Select this option to enable the event setting.
- **Priority:** Select the relative importance of this event (High, Normal, or Low). Events with a higher priority setting will be executed first.
- **Detect next motion detection or digital input after  seconds:** Enter the duration in seconds to pause motion detection after a motion is detected. This can prevent event-related actions to be too frequently performed.

### 1. Schedule

Specify the period of time during which the event trigger will take place. Please select the days of the week and the time in a day (in a 24-hr time format) for the event triggering schedule.

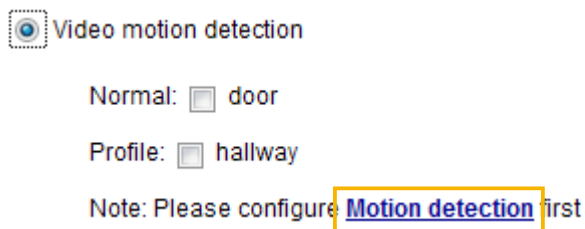
### 2. Trigger

This is the cause or stimulus which defines when to trigger the Network Camera. The trigger source can be configured to use the Network Camera's built-in motion detection mechanism or external digital input devices.

There are several choices of trigger sources as shown on next page. Select the item to display the detailed configuration options.

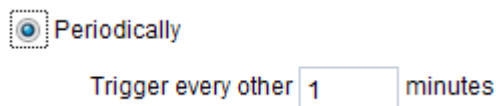
- **Video motion detection**

This option makes use of the built-in motion detection mechanism as a trigger source. To enable this function, you need to configure a Motion Detection Window first. For more information, please refer to Motion Detection on page 112 for details.



- **Periodically**

This option allows the Network Camera to trigger periodically for every other defined minute. Up to 999 minutes are allowed.



- **Digital input**

This option allows the Network Camera to use an external digital input device or sensor as a trigger source. Depending on your application, there are many choices of digital input devices on the market which helps to detect changes in temperature, vibration, sound, and light, etc.

- **System boot**

This option triggers the Network Camera when the power to the Network Camera is disconnected.

- **Recording notify**

This option allows the Network Camera to trigger when the recording disk is full or when recording starts to rewrite older data.

■ Audio detection

A preset threshold can be configured with an external microphone as the trigger to system event. The triggering condition can be an input exceeding or falling below a threshold. Audio detection can take place as a complement to motion detection or as a method to detect activities not covered by the camera's view.

Audio detection

- Normal: Trigger event when detected audio rises above  alarm level
- Profile: Trigger event when detected audio rises above  alarm level

Note: Please configure [Audio detection](#) first

Once you have a preset audio alarm level, you can define the triggering condition either as an audio input rises above or falls below the alarm level.

■ Camera tampering detection

This option allows the Network Camera to trigger when the camera detects that it is being tampered with. To enable this function, you need to configure the Tampering Detection option first. Please refer to page 115 for detailed information.

**Camera tampering detection**

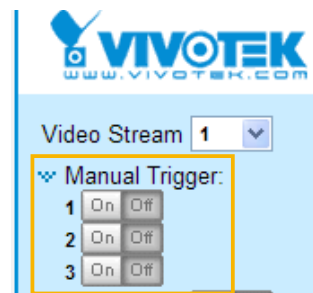
Enable camera tampering detection

■ Manual Trigger

This option allows users to enable event triggers manually by clicking the on/off button on the homepage. Please configure 1 to 3 associated events before using this function.

Manual Trigger

1  2  3



### 3. Action

Define the actions to be performed by the Network Camera when a trigger is activated.

**Action**

Trigger digital output for  seconds

Backup media if the network is disconnected

Note: Please configure [Preset locations](#) first

| Server                        | Media                                     | Extra parameter   |
|-------------------------------|---|---|
| <input type="checkbox"/> SD   | <input type="text" value="----None----"/> | <a href="#">SD test</a> <a href="#">View</a>  |
| <input type="checkbox"/> HTTP | <input type="text" value="----None----"/> |   |
| <input type="checkbox"/> nas  | <input type="text" value="----None----"/> | <input type="checkbox"/> Create folders by date time and hour automatically<br><a href="#">View</a> |

- Trigger digital output for  seconds  
Select this option to turn on the external digital output device when a trigger is activated. Specify the length of the trigger interval in the text box.
- Backup media if the network is disconnected  
Select this option to backup media file on SD card if the network is disconnected. This function will only be displayed after you set up a networked storage (NAS).

## Add server

To set an event with recorded video or snapshots, it is necessary to configure the server and media settings so that the Network Camera will know what action to take (such as which server to send the media files to) when a trigger is activated. Click **Add server** to open the server setting window. You can specify where the notification messages are sent when a trigger is activated. A total of 5 server settings can be configured.

There are four choices of server types available: Email, FTP, HTTP, and Network storage. Select the item to display the detailed configuration options. You can configure either one or all of them.

### Server type - Email

Select to send the media files via email when a trigger is activated.

- Server name: Enter a name for the server setting.
- Sender email address: Enter the email address of the sender.
- Recipient email address: Enter the email address of the recipient.
- Server address: Enter the domain name or IP address of the email server.
- User name: Enter the user name of the email account if necessary.
- Password: Enter the password of the email account if necessary.
- Server port: The default mail server port is set to 25. You can also manually set another port.

If your SMTP server requires a secure connection (SSL), check **This server requires a secure connection (SSL)**.

To verify if the email settings are correctly configured, click **Test**. The result will be shown in a pop-up window. If successful, you will also receive an email indicating the result.



Click **Save server** to enable the settings.

Note that after you set up the first event server, the new event server will automatically display on the Server list. If you wish to add other server options, click **Add server**.

| Server   | Media          | Extra parameter                              |
|--|----------------|--|
| <input type="checkbox"/> SD  | -----None----- | <a href="#">SD test</a> <a href="#">View</a> |
| <input type="checkbox"/> Email   | -----None----- |  |
| <input type="button" value="Add server"/> <input type="button" value="Add media"/> |                |  |

### Server type - FTP

Select to send the media files to an FTP server when a trigger is activated.

Server name:

Server Type

Email

FTP

Server address:

Server port:

User name:

Password:

FTP folder name:

Passive mode

HTTP

Network storage

- Server name: Enter a name for the server setting.
- Server address: Enter the domain name or IP address of the FTP server.
- Server port: By default, the FTP server port is set to 21. It can also be assigned to another port number between 1025 and 65535.
- User name: Enter the login name of the FTP account.
- Password: Enter the password of the FTP account.
- FTP folder name  
Enter the folder where the media file will be placed. If the folder name does not exist, the Network Camera will automatically create one on the FTP server.

■ **Passive mode**

Most firewalls do not accept new connections initiated from external requests. If the FTP server supports passive mode, select this option to enable passive mode FTP and allow data transmission to pass through the firewall. The firmware default has the Passive mode checkbox selected.

To verify if the FTP settings are correctly configured, click **Test**. The result will be shown in a pop-up window as shown below. If successful, you will also receive a test.txt file on the FTP server.



Click **Save server** to enable the settings.

Server type - HTTP

Select to send the media files to an HTTP server when a trigger is activated.

- **Server name:** Enter a name for the server setting.
- **URL:** Enter the URL of the HTTP server.
- **User name:** Enter the user name if necessary.
- **Password:** Enter the password if necessary.

To verify if the HTTP settings are correctly configured, click **Test**. The result will be shown in a pop-up window as below. If successful, you will receive a test.txt file on the HTTP server.



Click **Save server** to enable the settings.



**Network storage:**

Select to send the media files to a network storage location when a trigger is activated. Please refer to **NAS server** on page 122 for details.

Click **Save server** to enable the settings.

**Action**

Trigger digital output for  seconds

Backup media if the network is disconnected

Note: Please configure [Preset locations](#) first

| Server                         | Media        | Extra parameter   |
|--------------------------------|--------------|---|
| <input type="checkbox"/> SD    | ----None---- | <a href="#">SD test</a> <a href="#">View</a>  |
| <input type="checkbox"/> Email | ----None---- |   |
| <input type="checkbox"/> FTP   | ----None---- |   |
| <input type="checkbox"/> HTTP  | ----None---- |   |
| <input type="checkbox"/> NAS   | ----None---- | <input type="checkbox"/> Create folders by date time and hour automatically<br><a href="#">View</a> |

- **SD Test:** Click to test your SD card. The system will display a message indicating success or failure. If you want to use your SD card for local storage, please format it before use. Please refer to page 125 for detailed information.
- **View:** Click this button to open a file list window. This function is only for SD card and Network Storage. If you click the View button of SD card, a Local storage page will pop up for you to manage recorded files on SD card. For more information about Local storage, please refer to page 125. If you click the View button of Network storage, a file directory window will pop up for you to view recorded data on Network storage. For detailed illustration, please refer to the next page.
- **Create folders by date, time, and hour automatically:** If you check this item, the system will generate folders automatically by the date when video footages are stored onto the networked storage.

The following is an example of a file destination with video clips:

|   |                          |  |
|---|--------------------------|--|
| <input type="checkbox"/>  | <a href="#">20130820</a> | <p style="color: green; margin: 0;">The format is: YYYYMMDD</p> <p style="color: blue; margin: 0;">Click to open the directory</p> |
| <input type="checkbox"/>  | <a href="#">20130821</a> |  |
| <input type="checkbox"/>  | <a href="#">20130822</a> |  |
| <input type="button" value="Delete"/> <input type="button" value="Delete all"/> |                          | <p style="color: blue; margin: 0;">Click to delete all recorded data</p>   |

Click to delete selected items

Click [20130220](#) to open the directory:

**The format is: HH (24r)**

Click to open the file list for that hour

< 07 08 09 10 11 12 13 14 15 16 17 >

|                          | file name                         | size    | date       | time     |
|--------------------------|-----------------------------------|---------|------------|----------|
| <input type="checkbox"/> | <a href="#">Recording1 58.mp4</a> | 2526004 | 2013/02/20 | 07:58:28 |
| <input type="checkbox"/> | <a href="#">Recording1 59.mp4</a> | 2563536 | 2013/02/20 | 07:59:28 |

Click to delete selected items

Click to go back to the previous level of the directory

Click to delete all recorded data

< 07 08 09 10 11 12 13 14 15 16 17 >

|                          | file name                         | size    | date       | time     |
|--------------------------|-----------------------------------|---------|------------|----------|
| <input type="checkbox"/> | <a href="#">Recording1 58.mp4</a> | 2526004 | 2013/02/20 | 07:58:28 |
| <input type="checkbox"/> | <a href="#">Recording1 59.mp4</a> | 2563536 | 2013/02/20 | 07:59:28 |

**The format is: File name prefix + Minute (mm)**

You can set up the file name prefix on Add media page. Please refer to next page for detailed information.

### Add media

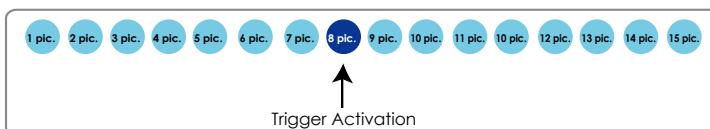
Click **Add media** to open the media setting window. You can specify the type of media that will be sent when a trigger is activated. A total of 5 media settings can be configured. There are three choices of media types available: Snapshot, Video Clip, and System log. Select the item to display the detailed configuration options. You can configure either one or all of them.

#### Media type - Snapshot

Select to send snapshots when a trigger is activated.

- Media name: Enter a name for the media setting.
- Source: Select to take snapshots from a video stream.
- Send  pre-event images  
The Network Camera has a buffer area; it temporarily holds data up to a certain limit. Enter a number to decide how many images to capture before a trigger is activated. Up to 7 images can be generated.
- Send  post-event images  
Enter a number to decide how many images to capture after a trigger is activated. Up to 7 images can be generated.

For example, if both the Send pre-event images and Send post-event images are set to 7, a total of 15 images are generated after a trigger is activated.



- File name prefix  
Enter the text that will be appended to the front of the file name.

- Add date and time suffix to the file name  
Select this option to add a date/time suffix to the file name.  
For example:



Click **Save media** to enable the settings.

To note that after you set up the first media server, a new column for media server will automatically show up on the Media list. If you wish to add more other media options, click **Add media**.

Media type - Video clip

Select to send video clips when a trigger is activated.

Media name:

**Media type**

Attached media:

Snapshot

Video clip

Source:  ▼

Pre-event recording:  seconds [0~9]

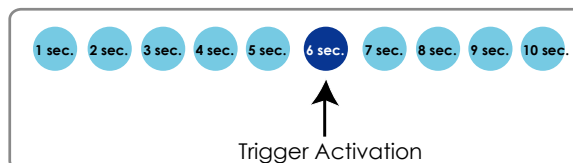
Maximum duration:  seconds [1~20]

Maximum file size:  Kbytes [50~8192]

File name prefix:

System log

- Media name: Enter a name for the media setting.
- Source: Select the source of video clip.
- Pre-event recording  
The Network Camera has a buffer area; it temporarily holds data up to a certain limit. Enter a number to decide the duration of recording before a trigger is activated. Up to 9 seconds can be set.
- Maximum duration  
Specify the maximum recording duration in seconds. Up to 10 seconds can be set.  
For example, if pre-event recording is set to five seconds and the maximum duration is set to ten seconds, the Network Camera continues to record for another 4 seconds after a trigger is activated.



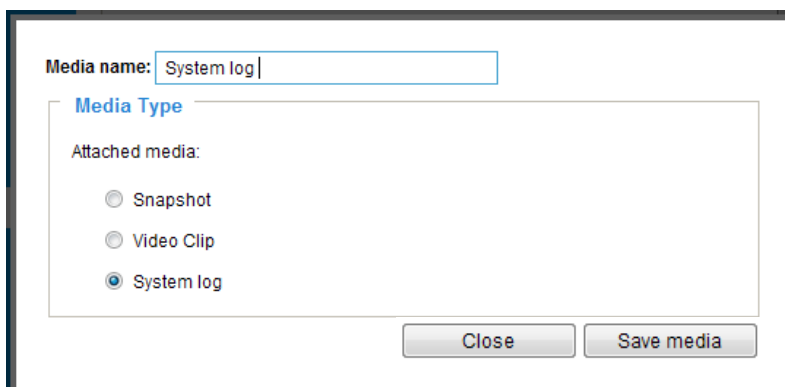
- **Maximum file size**  
Specify the maximum file size allowed.
- **File name prefix**  
Enter the text that will be appended to the front of the file name.  
For example:



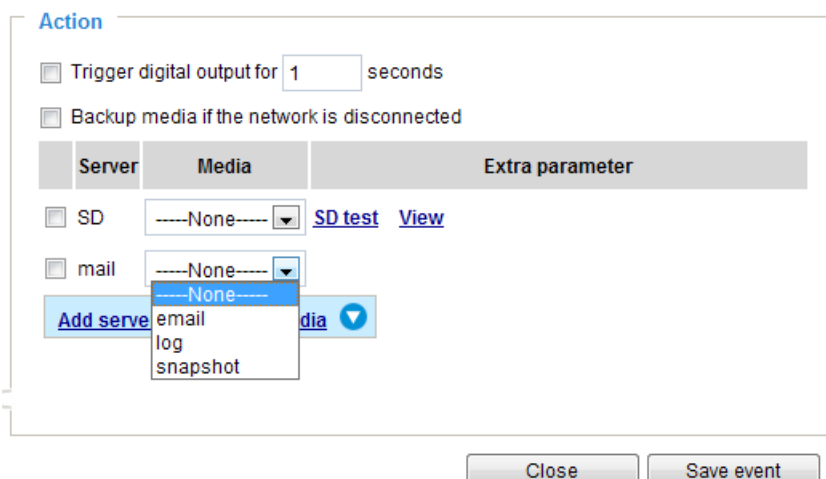
Click **Save media** to enable the settings.

Media type - System log

Select to send a system log when a trigger is activated.



Click **Save media** to enable the settings, then click **Close** to exit the page.



In the Event settings column, the Servers and Medias you configured will be listed; please make sure the Event -> Status is indicated as **ON**, in order to enable the event triggering action.

When completed, click **Save event** to enable the settings and click **Close** to exit Event Settings page. The new Event / Server settings / Media will appear in the event drop-down list on the Event setting page.

Please see the example of the Event setting page below:

**Event**

| Name                   | Status    | Sun | Mon | Tue | Wed | Thu | Fri | Sat | Time        | Trigger |                                       |
|------------------------|-----------|-----|-----|-----|-----|-----|-----|-----|-------------|---------|---------------------------------------|
| <a href="#">event1</a> | <b>ON</b> | V   | V   | V   | V   | V   | V   | V   | 00:00~24:00 | seq     | <input type="button" value="Delete"/> |

[Help](#)

**Server settings**

| Name                 | Type | Address/Location    |                                       |
|----------------------|------|---------------------|---------------------------------------|
| <a href="#">HTTP</a> | http | http://192.168.5.10 | <input type="button" value="Delete"/> |

**Media**

Available memory space: 13000KB

| Name                       | Type      |                                       |
|----------------------------|-----------|---------------------------------------|
| <a href="#">Snapshot</a>   | snapshot  | <input type="button" value="Delete"/> |
| <a href="#">Video clip</a> | videoclip | <input type="button" value="Delete"/> |
| <a href="#">System log</a> | systemlog | <input type="button" value="Delete"/> |

**Customized script**

| Name | Date | Time |
|------|------|------|
|------|------|------|

When the Event Status is **ON**, once an event is triggered by motion detection, the Network Camera will automatically send snapshots via e-mail.

If you want to stop the event trigger, you can click on the **ON** button to turn its status to **OFF** or click **Delete** to remove the event setting.

To remove a server setting from the list, select a server name from the drop-down list and click **Delete**. Note that you can only delete a server setting when it is not applied to an existing event setting.

To remove a media setting from the list, select a media name from the drop-down list and click **Delete**. Note that you can only delete a media setting when it is not applied to an event setting.

## Customized Script

This function allows you to upload a sample script (.xml file) to the webpage, which will save your time on configuring the settings. Please note that there is a limited number of customized scripts you can upload; if the current amount of customized scripts has reached the limit, an alert message will prompt. If you need more information, please contact VIVOTEK technical support.

### Customized Script

| Name                  | Date     | Time     |
|-----------------------|----------|----------|
| <a href="#">User1</a> | 20131113 | 18:13:46 |
| <a href="#">User2</a> | 20131113 | 18:11:32 |

Click to upload a file → 
 ▼

```

<?xml version="1.0" encoding="UTF-8"?>
<eventmgr version="0102">
  <mgprocess></mgprocess>
  <!-- from 08:30:00-20:30:00 on Monday to Friday every week -->
  <schedule id="0">
    <duration>
      <weekdays>1-5</weekdays>
      <time>08:30:00-20:30:00</time>
    </duration>
  </schedule>
  <!-- Motion -->
  <action condition="0">
    <status id="0"><trigger/></status>
    <status id="1"><trigger/></status>
  </action>
  <event id="0">
    <description>Mail system log to email address</description>
    <condition></condition>
    <scheduleid></scheduleid>
    <delay>0</delay>
    <!-- users can send email with title "Notice" to recipient gudding.yang@vivotek.com. The body of mail is the log messages -->
    <process>
      /usr/bin/empollent -s "Notice" -f IP@vivotek.com -b /var/log/messages -S ma.vivotek.tw -
      M S gudding.yang@vivotek.com
    </process>
    <priority></priority>
  </event>
</eventmgr>
                
```

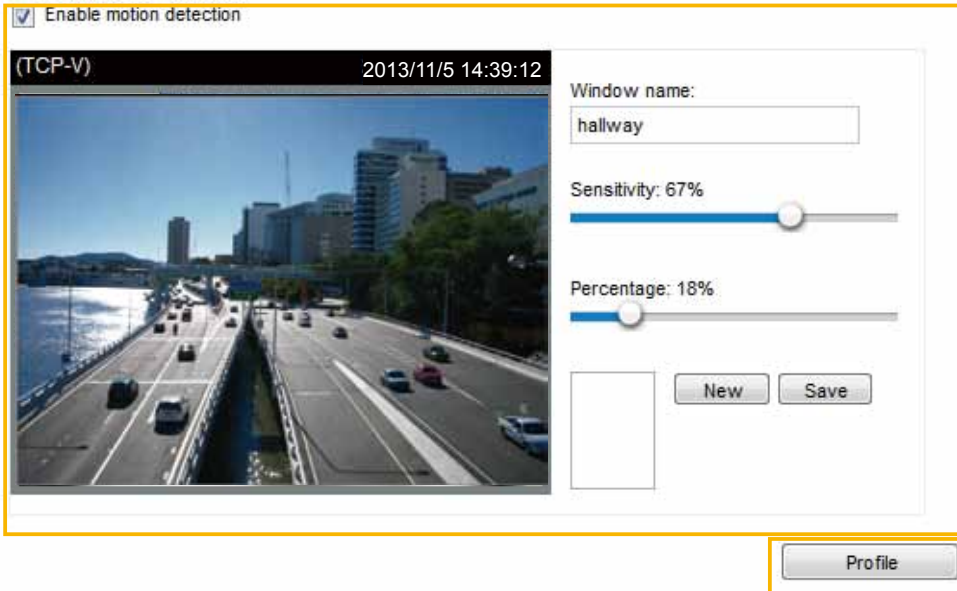
Click to modify the script online →

## Applications > Motion detection

This section explains how to configure the Network Camera to enable motion detection. A total of three motion detection windows can be configured.

Enable motion detection

(TCP-V)
2013/11/5 14:39:12



Motion Detection Setting 1:  
For normal situations

Motion Detection Setting 2:  
For special situations

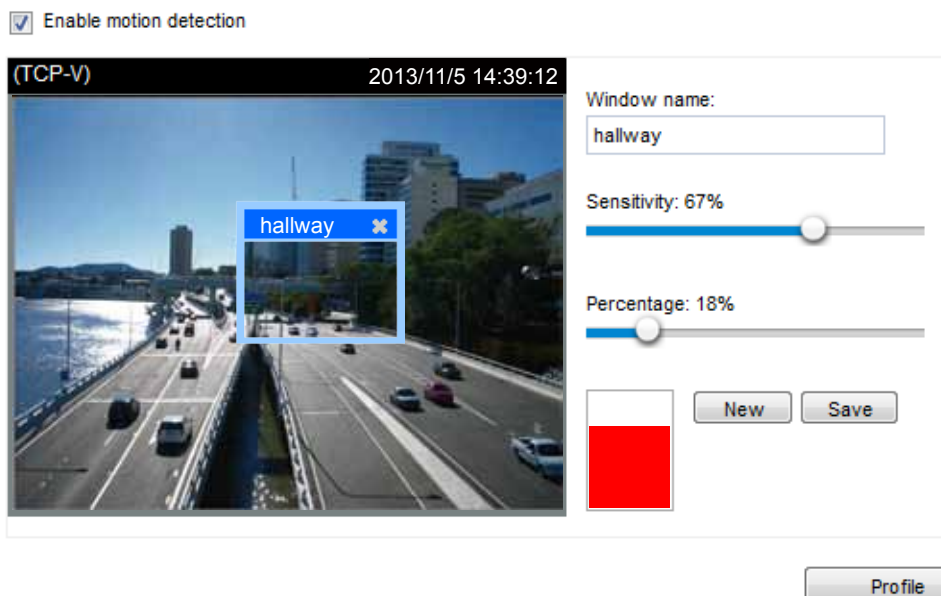
Follow the steps below to enable motion detection:

1. Click **New** to add a new motion detection window.
2. In the Window Name text box, enter a name for the motion detection window.
  - To move and resize the window, drag and drop your mouse on the window.
  - To delete a window, click X on the upper right corner of the window.
3. Define the sensitivity to moving objects and the space ratio of all alerted pixels by moving the Sensitivity and Percentage slider bar.
4. Click **Save** to enable the settings.
5. Select **Enable motion detection** to enable this function.

For example:

Enable motion detection

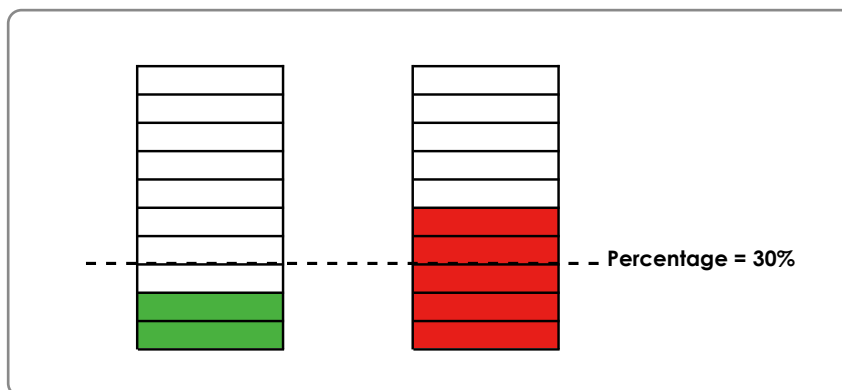
(TCP-V)
2013/11/5 14:39:12



The Percentage Indicator will rise or fall depending on the variation between sequential images. When motions are detected by the Network Camera and are judged to exceed the defined threshold, the red bar rises. Meanwhile, the motion detection window will be outlined in red. Photos or videos can be captured instantly and configured to be sent to a remote server (Email, FTP) by utilizing this feature as a trigger source. For more information on how to set an event, please refer to Event settings on page 98.




A green bar indicates that even though motions have been detected, the event has not been triggered because the image variations still fall under the defined threshold.



If you want to configure other motion detection settings for day/night/schedule mode, please click **Profile** to open the Motion Detection Profile Settings page as shown below. A total of three motion detection windows can be configured on this page as well.

>Motion detection profile settings

(TCP-V)
2013/11/5 14:39:12



Window name:

Sensitivity: 63%

Percentage: 17%

**General settings**

Enable this profile

This profile is applied to:

Day mode

Night mode

Schedule mode

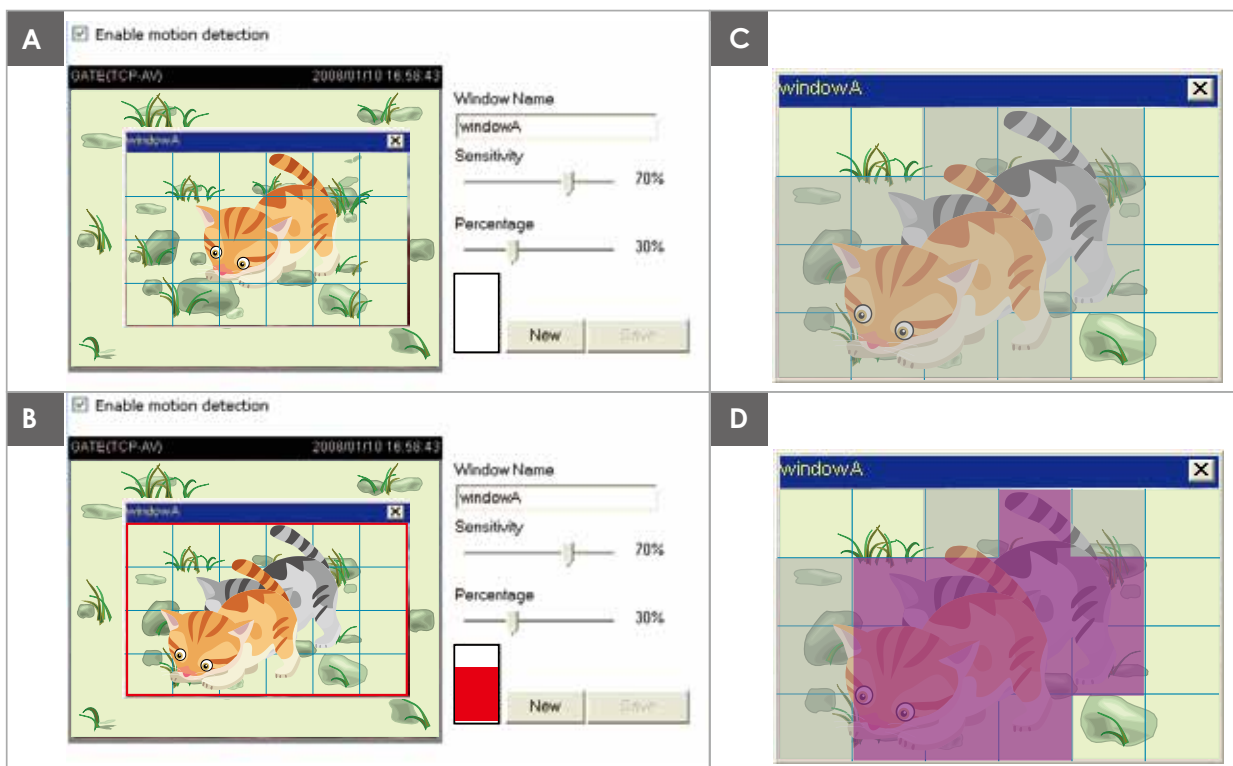
Please follow the steps below to set up a profile:

1. Create a new motion detection window.
2. Check **Enable this profile**.
3. Select the applicable mode: Day mode, Night mode, or Schedule mode. Please manually enter a time range if you choose Schedule mode.
4. Click **Save** to enable the settings and click **Close** to exit the page.

This motion detection window will also be displayed on the Event Settings page. You can go to Event > Event settings > Trigger to choose it as a trigger source. Please refer to page 121 for detailed information.

 **NOTE:**

► *How does motion detection work?*



There are two motion detection parameters: *Sensitivity* and *Percentage*. In the illustration above, frame A and frame B are two sequential images. Pixel differences between the two frames are detected and highlighted in gray (frame C) and will be compared with the sensitivity setting. *Sensitivity* is a value that expresses the sensitivity to moving objects. Higher sensitivity settings are expected to detect slight movements while smaller sensitivity settings will neglect them. When the sensitivity is set to 70%, the Network Camera defines the pixels in the purple areas as “alerted pixels” (frame D).

*Percentage* is a value that expresses the proportion of “alerted pixels” to all pixels in the motion detection window. In this case, 50% of pixels are identified as “alerted pixels”. When the percentage is set to 30%, the motions are judged to exceed the defined threshold; therefore, the motion window will be outlined in red.

For applications that require a high level of security management, it is suggested to use higher sensitivity settings and smaller percentage values.

## Applications > DI and DO

**Digital input**

Normal status:  High  Low

Current status: **High**

**Digital output**

Normal status:  Open  Grounded

Current status: **Open**

Connect DI or DO devices to the camera's terminal block, the camera will automatically detect the current connection state as pulled-high or pulled-low. You may then define the triggering condition.

Digital input: Select High or Low to define the "active state" for the digital input. The Network Camera will report the current status.

Digital output: Select Grounded or Open to define the "active state" for the digital output. The Network Camera will show whether the trigger is activated or not.

## Applications > Tampering detection

This section explains how to set up camera tamper detection. With tamper detection, the camera is capable of detecting incidents such as **redirection**, **blocking or defocusing**, or even **spray paint**.

**Camera tampering detection**

Enable camera tampering detection

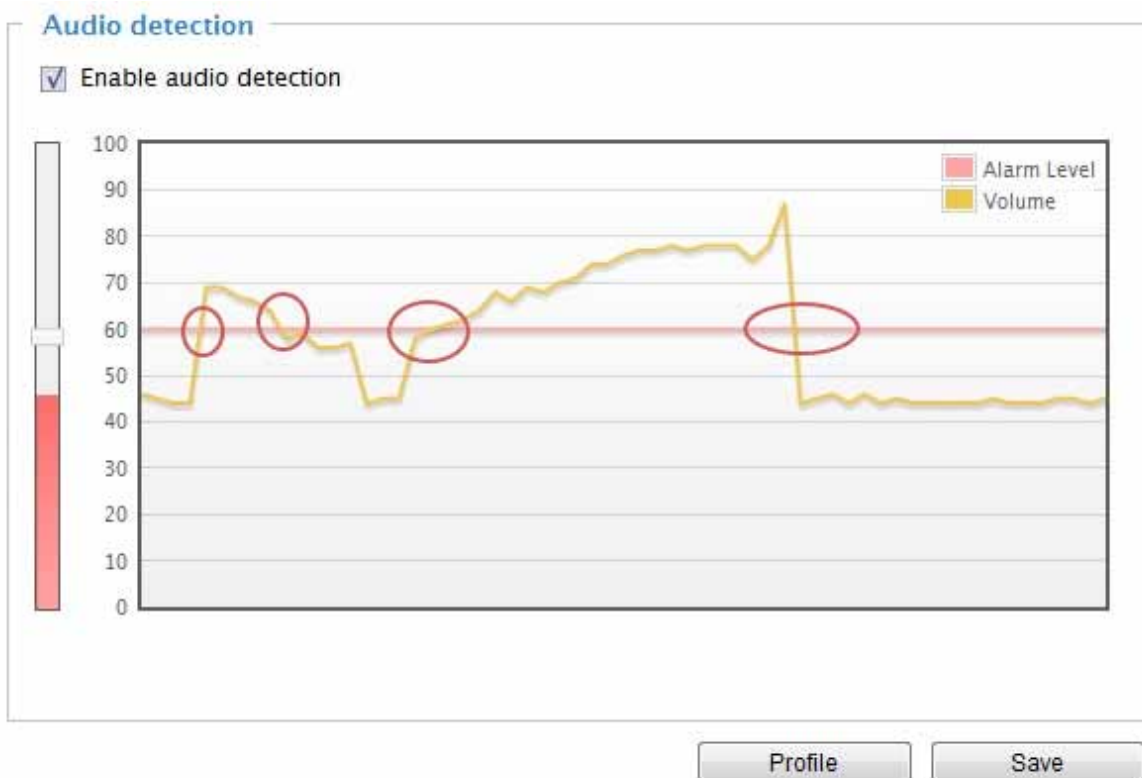
Please follow the steps below to set up the camera tamper detection function:

1. Check **Enable camera tampering detection**.
2. The tamper alarm will be triggered only when the tampering factor (the difference between current frame and pre-saved background) exceeds the trigger threshold.
3. Set up the event source as Camera Tampering Detection on **Event > Event settings > Trigger**. Please refer to page 121 for detailed information.

## Applications > Audio detection

Audio detection, along with video motion detection, is applicable in the following scenarios:

1. Detection of activities not covered by camera view, e.g., a loud input by gun shots or breaking a door/window.
2. A usually noisy environment, such as a factory, suddenly becomes quiet due to a breakdown of machines.
3. A PTZ camera can be directed to turn to a preset point by the occurrence of audio events.
4. Dark environments where video motion detection may not function well.



The red circles indicate where the audio alarms can be triggered when breaching or falling below the preset threshold.

How to configure Audio detection:

1. Once the Audio detection window is opened, the current sound input will be interactively indicated by a fluctuating yellow wave diagram.
2. Use a mouse click to drag the Alarm level tab to a preferred location on the slide bar.
3. Select the "Enable audio detection" checkbox and click Save to enable the feature.



### NOTE:


1. Note that the volume numbers (0~100) on the side of wave diagram does not represent decibel (dB). Sound intensity level has already been mapped to preset values. You can, however, use the real-world inputs at your installation site that are shown on the wave diagram to configure an alarm level.
2. To configure this feature, you must not mute the audio in **Configuration > Media > Audio**. The default of the camera can be muted due to the lack of an internal microphone. An external microphone is provided by users.

You can use the **Profile** window to configure a different Audio detection setting. For example, a place can be noisy in the day time and become very quiet in the night.

1. Click on the **Enable this profile** checkbox. Once the Audio detection window is opened, the current sound input will be interactively indicated by a fluctuating yellow wave diagram.
2. Use a mouse click to drag the **Alarm level** tab to a preferred location on the slide bar.
3. Select the **Day**, **Night**, or **Schedule** mode check circles. You may also manually configure a period of time during which this profile will take effect.
4. Click **Save** and then click **Close** to complete your configuration.

#### >Audio detection profile settings

**Audio detection**



**General settings**

Enable this profile

This profile is applied to:

Day mode

Night mode

Schedule mode

From  to  [hh:mm]



#### IMPORTANT:

- If the Alarm level and the received volume are set within a range of 20% on the wave diagram, frequent alarms will be triggered. It is recommended to set the Alarm level farther apart from the detected sound level.
- To configure and enable this feature, you **must not** configure video stream #1 into **Motion JPEG**. If an external microphone input is connected and recording of audio stream is preferred, audio stream is transmitted between camera and viewer/recording station **along with stream #1**.
- Refer to page 62 for Audio settings, and page 58 for video streaming settings.

## Applications > VADP (VIVOTEK Application Development Platform)

**Upload package**

Save to SD card

Select file

**Resource status**

▼ Storage status:

|               |              |            |              |
|---------------|--------------|------------|--------------|
| storage_size: | 10240 KBytes | Free size: | 10240 KBytes |
|---------------|--------------|------------|--------------|

▼ SD card status: Detached

|             |          |            |          |
|-------------|----------|------------|----------|
| Total size: | 0 KBytes | Free size: | 0 KBytes |
| Used size:  | 0 KBytes | Use (%):   | 0 %      |

▼ Memory status:

|             |              |            |              |
|-------------|--------------|------------|--------------|
| Total size: | 24576 KBytes | Free size: | 24576 KBytes |
|-------------|--------------|------------|--------------|

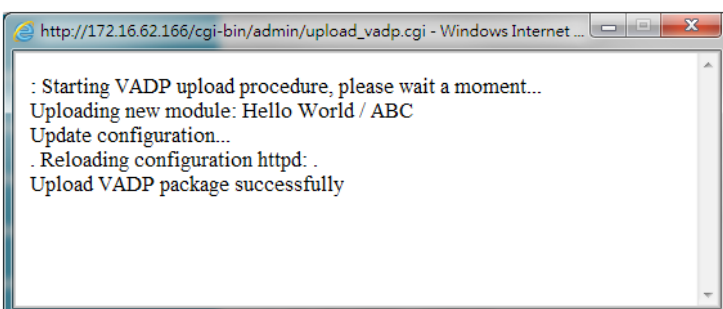
**Module list**

| Module name  | Vendor | Version | Status | License |
|--|--------|---------|--------|---------|
| <input type="button" value="Start"/> <input type="button" value="Stop"/> |        |         |        |         |

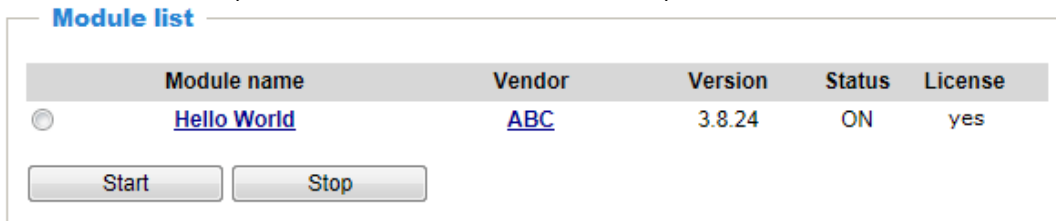
Users can store and execute VIVOTEK's or 3rd-party software modules onto the camera's flash memory or SD card. These software modules can apply in video analysis for intelligent video applications such as license plate recognition, object counting, or as an agent for edge recording, etc.

- Once the software package is successfully uploaded, the module configuration (vadp.xml) information is displayed. When uploading a module, the camera will examine whether the module fits the predefined VADP requirements. Please contact technical support or the vendor of your 3rd-party module for the parameters contained within.
- Users can also run VIVOTEK's VADP packages as a means to access updated functionality instead of replacing the entire firmware.
- Note that for some cameras the flash is too small to hold VADP packages. These cameras will have its "Save to SD card" checkbox selected and grayed-out for all time.
- The file system of SD card (FAT32) does not support soft (symbolic) link. It will return failure if your module tries to create soft links on SD card.

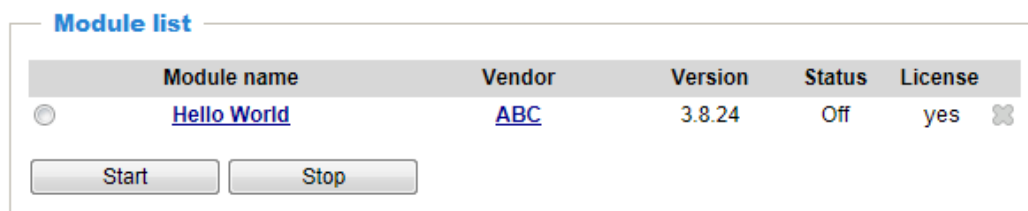
To utilize a software module, acquire the software package and click **Browse** and **Upload** buttons. The screen message for a successful upload is shown below:



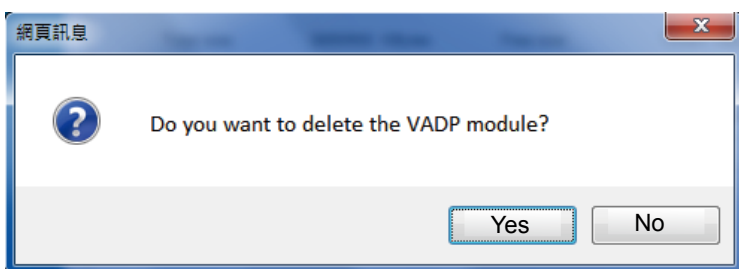
To start a module, select the checkcircle in front, and click the **Start** button.



If you should need to remove a module, select the checkcircle in front and then click the **Stop** button. By then the module status will become **OFF**, and the **X** button will appear at the end of the row. Click on the **X** button to remove an existing module.



When prompted by a confirm message, Click **Yes** to proceed.



Note that the actual memory consumed while operating the module will be indicated on the **Memory status** field. This helps determine whether a running module has consumed too much of system resources.

## Recording > Recording settings

This section explains how to configure the recording settings for the Network Camera.

### Recording Settings

Insert your SD card and click here to test

Recording settings

| Name | Status | Sun | Mon | Tue | Wed | Thu | Fri | Sat | Time | Source | Destination | Delete |
|------|--------|-----|-----|-----|-----|-----|-----|-----|------|--------|-------------|--------|
|      |        |     |     |     |     |     |     |     |      |        |             |        |

Add [SD test](#)

Note: Before setup recording, you may setup network storage via [NAS server](#) page

#### NOTE:

► Please remember to format your SD card when using it for the first time. Please refer to page 125 for detailed information.

### Recording Settings

Click **Add** to open the recording setting window. On this page, you can define the adaptive recording, recording source, recording schedule, and recording capacity. A total of 2 recording settings can be configured.

Recording name:

Enable this recording

With adaptive recording

Pre-event recording:  seconds [0~9]

Post-event recording:  seconds [0~10]

Priority:

Source:

**1. Trigger**

**2. Destination**

**Trigger**

Schedule

Sun  Mon  Tue  Wed  Thu  Fri  Sat

**Time**

Always

From  to  [hh:mm]

Network fail

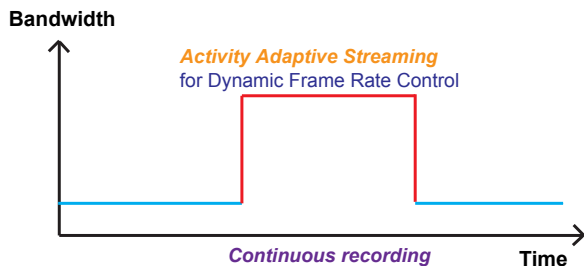
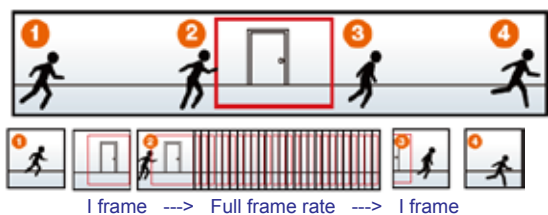
Note: To enable recording notification please configure [Event](#) first

Close Save

- Recording name: Enter a name for the recording setting.
- Enable this recording: Select this option to enable video recording.
- With adaptive recording: Select this option will activate the frame rate control according to alarm trigger. The frame control means that when there is a triggered alarm, the frame rate will raise up to the value you've set on Video quality page. Please refer to page 59 for more information.



If you enable adaptive recording and enable time-shift cache stream on Camera A, only when an event is triggered on Camera A will the server record the full frame rate streaming data; otherwise, it will only request the I frame data during normal monitoring, thus effectively save lots of bandwidths and storage space.



**NOTE:**

- ▶ To enable adaptive recording, please make sure you've set up the trigger source such as Motion Detection, DI Device, or Manual Trigger.
- ▶ When there is no alarm trigger:
  - JPEG mode: record 1 frame per second.
  - H.264 mode: record 1 frame only.
  - MPEG-4 mode: record the I frame only.
- ▶ When the I frame period is >1s on Video settings page, firmware will force decrease the I frame period to 1s when adaptive recording is enabled.

The alarm trigger includes: motion detection and DI detection. Please refer to Event Settings on page 98.

- Pre-event recording and post-event recording  
The Network Camera has a buffer area; it temporarily holds data up to a certain limit. Enter a number to decide the duration of recording before and after a trigger is activated.
- Priority: Select the relative importance of this recording (High, Normal, or Low). Recording with a higher priority setting will be executed first.
- Source: Select a stream for the recording source.

**NOTE:**

- ▶ To enable recording notification please configure **Event settings** first. Please refer to page 98.

Please follow the steps below to set up the recording.

**1. Trigger**

Select a trigger source.

**Trigger**

Schedule

Sun  Mon  Tue  Wed  Thu  Fri  Sat

**Time**

Always

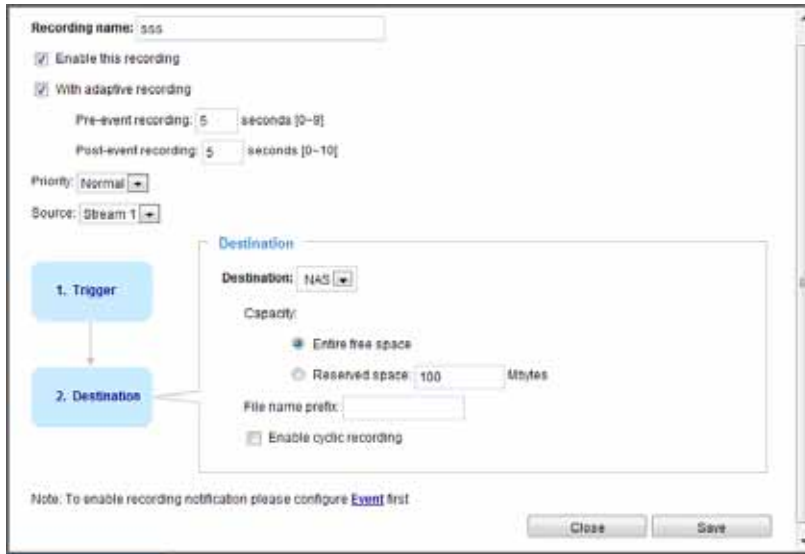
From  to  [hh:mm]

Network fail

- Schedule: The server will start to record files on the local storage or network storage (NAS).
- Network fail: Since network fail, the server will start to record files on the local storage (SD card).

## 2. Destination

You can select the SD card or network storage (NAS) for the recorded video files.

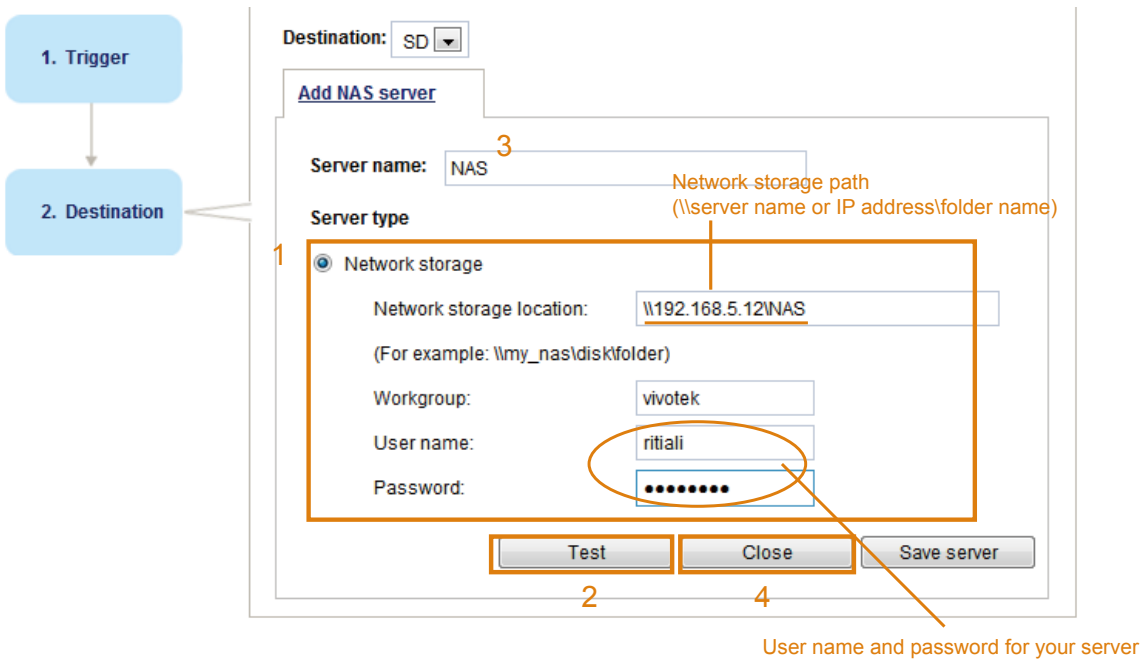


## NAS server

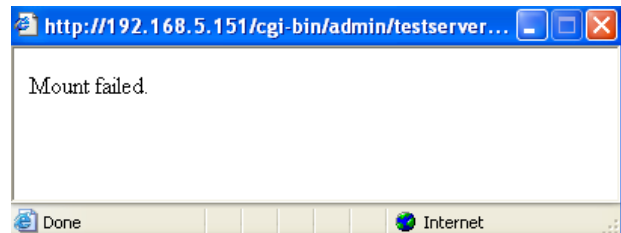
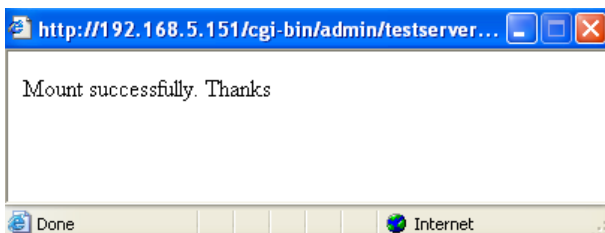
Click **Add NAS server** to open the server setting window and follow the steps below to set up:

1. Fill in the information for your server.

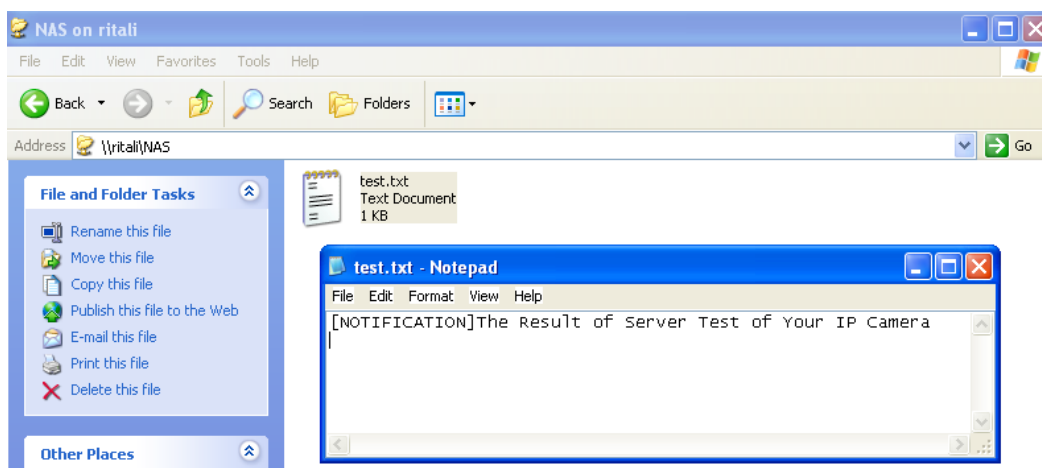
For example:



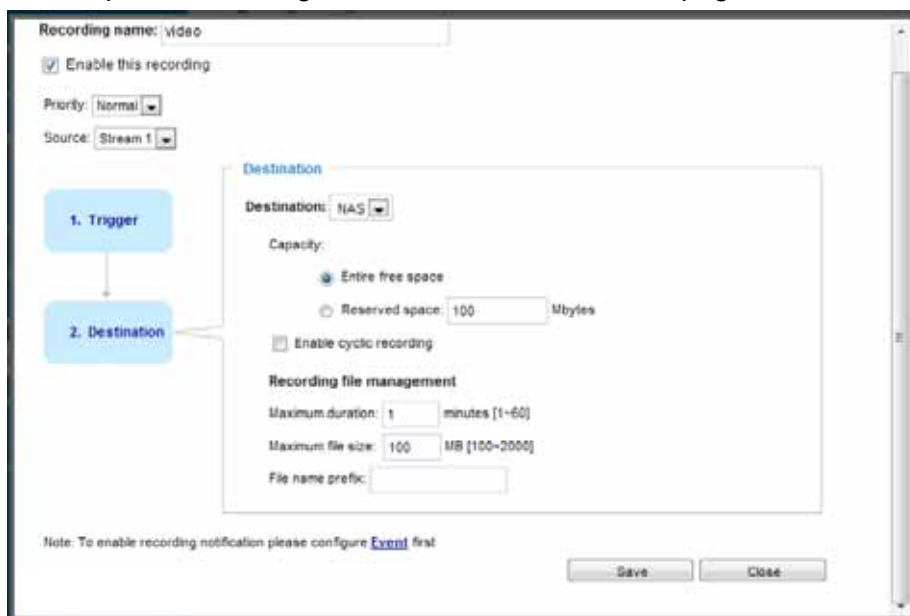
2. Click **Test** to check the setting. The result will be shown in the pop-up window.



If successful, you will receive a test.txt file on the network storage server.



3. Enter a server name.
4. Click **Save** to complete the settings and click **Close** to exit the page.



- **Capacity:** You can choose either the entire free space available or limit the reserved space. The recording size limit must be larger than the reserved amount for cyclic recording.
- **File name prefix:** Enter the text that will be appended to the front of the file name.
- **Enable cyclic recording:** If you check this item, when the maximum capacity is reached, the oldest file will be overwritten by the latest one. The reserved amount is reserved for the transaction stage when the storage space is about to be full and new data arrives. The minimum for the Reserved space must be larger than 15 MBytes.

If you want to enable recording notification, please click [Event](#) to configure event triggering settings. Please refer to **Event > Event settings** on page 98 for more details.

When completed, select **Enable this recording**. Click **Save** to enable the setting and click **Close** to exit this page. When the system begins recording, it will send the recorded files to the network storage. The new recording name will appear in the drop-down list on the recording page as shown below.

To remove a recording setting from the list, select a recording name from the drop-down list and click **Delete**.

**Recording Settings**

Note: Before setup recording, you have to setup network storage first via [Server](#) page

| Name                  | Status             | Sun | Mon | Tue | Wed | Thu | Fri | Sat | Time        | Source  | Destination         |
|-----------------------|--------------------|-----|-----|-----|-----|-----|-----|-----|-------------|---------|---------------------|
| <a href="#">Video</a> | <a href="#">ON</a> | V   | V   | V   | V   | V   | V   | V   | 00:00~24:00 | stream1 | <a href="#">NAS</a> |

- Click [Video \(Name\)](#): Opens the Recording Settings page to modify.
- Click [ON \(Status\)](#): The Status will become [OFF](#) and stop recording.
- Click [NAS \(Destination\)](#): Opens the file list of recordings as shown below. For more information about folder naming rules, please refer to page 122 for details.

|                          |                   |                          |
|--------------------------|-------------------|--------------------------|
| <input type="checkbox"/> | <a href="#">→</a> | <a href="#">20131010</a> |
| <input type="checkbox"/> | <a href="#">→</a> | <a href="#">20131011</a> |
| <input type="checkbox"/> | <a href="#">→</a> | <a href="#">20131012</a> |

## Local storage > SD card management

This section explains how to manage the local storage on the Network Camera. Here you can view SD card status, and implement SD card control.

### SD card status

This column shows the status and reserved space of your SD card. Please remember to format the SD card when using for the first time.

**SD card status**

SD card status: **Detached** — no SD card

Total size: 0 KBytes Free size: 0 KBytes

Used size: 0 KBytes Use (%): 0 %

**SD card status**

SD card status: Ready

|             |                |            |                |
|-------------|----------------|------------|----------------|
| Total size: | 7810152 KBytes | Free size: | 7602048 KBytes |
| Used size:  | 208104 KBytes  | Use (%):   | 2.665 %        |

### SD card control

**SD card control**

Enable cyclic storage

Enable automatic disk cleanup

Maximum duration for keeping files:  days

- **Enable cyclic storage:** Check this item if you want to enable cyclic recording. When the maximum capacity is reached, the oldest file will be overwritten by the latest one.
- **Enable automatic disk cleanup:** Check this item and enter the number of days you wish to retain a file. For example, if you enter "7 days", the recorded files will be stored on the SD card for 7 days.

Click **Save** to enable your settings.

## Local storage > Content management

This section explains how to manage the content of recorded videos on the Network Camera. Here you can search and view the records and view the searched results.

### Searching and Viewing the Records

This column allows the user to set up search criteria for recorded data. If you do not select any criteria and click **Search** button, all recorded data will be listed in the **Search Results** column.

**Searching and viewing the records**

**File attributes**

Trigger type:

|  |  |                                       |
|--|--|---------------------------------------|
| <input type="checkbox"/> System boot     | <input type="checkbox"/> Recording notify    | <input type="checkbox"/> Motion       |
| <input type="checkbox"/> Digital input   | <input type="checkbox"/> Network fail        | <input type="checkbox"/> Periodically |
| <input type="checkbox"/> Manual triggers | <input type="checkbox"/> Tampering detection |                                       |
| <input type="checkbox"/> Audio detection |  |                                       |

Media type:

|                                     |                                   |                               |
|-------------------------------------|-----------------------------------|-------------------------------|
| <input type="checkbox"/> Video clip | <input type="checkbox"/> Snapshot | <input type="checkbox"/> Text |
|-------------------------------------|-----------------------------------|-------------------------------|

Locked:

|                                 |                                   |
|---------------------------------|-----------------------------------|
| <input type="checkbox"/> Locked | <input type="checkbox"/> Unlocked |
|---------------------------------|-----------------------------------|

Backup:

|                                 |
|---------------------------------|
| <input type="checkbox"/> Backup |
|---------------------------------|

**Trigger time**

From:      Date       Time


to:          Date       Time

(yyyy-mm-dd)                      (hh:mm:ss)

- File attributes: Select one or more items as your search criteria.
- Trigger time: Manually enter the time range you want to search.

Click **Search** and the recorded data corresponding to the search criteria will be listed in **Search Results** window.

## Search Results

The following is an example of search results. There are four columns: Trigger time, Media type, Trigger type, and Locked. Click  to sort the search results in either direction.






Numbers of entries displayed on one page

Enter a key word to filter the search results

Search results

Show 10 entries

Search:

|                                     | Trigger time  | Media Type  | Trigger type  | Locked  | Backup  |
|-------------------------------------|--|--|--|--|--|
| <input checked="" type="checkbox"/> | 2010-08-26<br>10:42:55   | Video Clip   | Periodically   | No   | No   |
| <input type="checkbox"/>            | 2013-08-26<br>10:43:56   | Video Clip   | Periodically   | No   | No   |
| <input type="checkbox"/>            | 2013-08-26<br>10:44:56   | Video Clip   | Periodically   | No   | No   |
| <input type="checkbox"/>            | 2013-08-26<br>10:45:57   | Video Clip   | Periodically   | No   | No   |
| <input type="checkbox"/>            | 2013-08-26<br>10:46:58   | Video Clip   | Periodically   | No   | No   |
| <input type="checkbox"/>            | 2013-08-26<br>10:47:59   | Video Clip   | Periodically   | No   | No   |

Highlight an item

- **View:** Click on a search result which will highlight the selected item in purple as shown above. Click the **View** button and a media window will pop up to play back the selected file. For example:



Click to adjust the image size

- **Download:** Click on a search result to highlight the selected item in purple as shown above. Then click the **Download** button and a file download window will pop up for you to save the file.
- **JPEGs to AVI:** This functions only applies to “JPEG” format files such as snapshots. You can select several snapshots from the list, then click this button. Those snapshots will be converted into an AVI file.

- Lock/Unlock:** Select the desired search results, then click this button. The selected items will become Locked, which will not be deleted during cyclic recording. You can click again to unlock the selections. For example:

Search results

Show  entries Search:

|                                     | Trigger time           | Media Type | Trigger type | Locked | Backup |
|-------------------------------------|------------------------|------------|--------------|--------|--------|
| <input checked="" type="checkbox"/> | 2013-08-26<br>10:42:55 | Video Clip | Periodically | Yes    | No     |
| <input checked="" type="checkbox"/> | 2013-08-26<br>10:43:56 | Video Clip | Periodically | Yes    | No     |
| <input checked="" type="checkbox"/> | 2010-08-26<br>10:44:56 | Video Clip | Periodically | Yes    | No     |
| <input type="checkbox"/>            | 2013-08-26<br>10:45:57 | Video Clip | Periodically | No     | No     |
| <input type="checkbox"/>            | 2013-08-26<br>10:46:58 | Video Clip | Periodically | No     | No     |
| <input type="checkbox"/>            | 2013-08-26<br>10:47:59 | Video Clip | Periodically | No     | No     |
| <input type="checkbox"/>            | 2013-08-26<br>10:49:00 | Video Clip | Periodically | No     | No     |
| <input type="checkbox"/>            | 2013-08-26<br>10:50:00 | Video Clip | Periodically | No     | No     |
| <input type="checkbox"/>            | 2013-08-26<br>10:51:01 | Video Clip | Periodically | No     | No     |
| <input type="checkbox"/>            | 2013-08-26<br>10:52:00 | Video Clip | Periodically | No     | No     |

Showing 1 to 10 of 12 entries

Note: "View" and "Download" only apply to the highlight item

Click to switch pages

- Remove:** Select the desired search results, then click this button to delete the files.



# Appendix

## URL Commands for the Network Camera

### 1. Overview

For some customers who already have their own web site or web control application, the Network Camera/Video Server can be easily integrated through URL syntax. This section specifies the external HTTP-based application programming interface. The HTTP-based camera interface provides the functionality to request a single image, control camera functions (PTZ, output relay etc.), and get and set internal parameter values. The image and CGI-requests are handled by the built-in Web server.

### 2. Style Convention

In URL syntax and in descriptions of CGI parameters, text within angle brackets denotes content that is to be replaced with either a value or a string. When replacing the text string, the angle brackets should also be replaced. An example of this is the description of the name for the server, denoted with `<servername>` in the URL syntax description below, that is replaced with the string `myserver` in the URL syntax example further down in the page.

URL syntax is denoted with the word "Syntax:" written in bold face followed by a box with the referenced syntax as shown below. For example, name of the server is written as `<servername>` and is intended to be replaced with the name of the actual server. This can either be a name, e.g., "mywebcam" or "thecam.adomain.net" or the associated IP number for the server, e.g., 192.168.0.220.

Syntax:

```
http://<servername>/cgi-bin/viewer/video.jpg
```

Description of returned data is written with "Return:" in bold face followed by the returned data in a box. All data is returned in HTTP format, i.e., each line is separated with a Carriage Return and Line Feed (CRLF) printed as `\r\n`.

Return:

```
HTTP/1.0 <HTTP code> <HTTP text>\r\n
```

URL syntax examples are written with "Example:" in bold face followed by a short description and a light grey box with the example.

**Example:** request a single snapshot image

```
http://mywebserver/cgi-bin/viewer/video.jpg
```

### 3. General CGI URL Syntax and Parameters

CGI parameters are written in lower-case and as one word without any underscores or other separators. When the CGI request includes internal camera parameters, these parameters must be written exactly as they are named in the camera or video server. The CGIs are organized in functionally-related directories under the cgi-bin directory. The file extension .cgi is required.

Syntax:

```
http://<servername>/cgi-bin/<subdir>[/<subdir>...]/<cgi>.<ext>
[?<parameter>=<value>[&<parameter>=<value>...]]
```

**Example:** Set digital output #1 to active

<http://mywebserver/cgi-bin/dido/setdo.cgi?dol=1>

### 4. Security Level

| SECURITY LEVEL | SUB-DIRECTORY   | DESCRIPTION   |
|----------------|---|---|
| 0              | anonymous   | Unprotected.  |
| 1 [view]       | anonymous, viewer,<br>dido, camctrl                     | 1. Can view, listen, talk to camera.<br>2. Can control DI/DO, PTZ of the camera.                              |
| 4 [operator]   | anonymous, viewer,<br>dido, camctrl, operator           | Operator access rights can modify most of the camera's parameters except some privileges and network options. |
| 6 [admin]      | anonymous, viewer,<br>dido, camctrl, operator,<br>admin | Administrator access rights can fully control the camera's operations.  |
| 7              | N/A   | Internal parameters. Unable to be changed by any external interfaces.   |

## 5. Get Server Parameter Values

**Note:** The access right depends on the URL directory.

**Method:** GET/POST

Syntax:

```
http://<servername>/cgi-bin/anonymous/getparam.cgi?[<parameter>]
[&<parameter>...]

http://<servername>/cgi-bin/viewer/getparam.cgi?[<parameter>]
[&<parameter>...]

http://<servername>/cgi-bin/operator/getparam.cgi?[<parameter>]
[&<parameter>...]

http://<servername>/cgi-bin/admin/getparam.cgi?[<parameter>]
[&<parameter>...]
```

Where the *<parameter>* should be *<group>[\_<name>]* or *<group>[.<name>]*. If you do not specify any parameters, all the parameters on the server will be returned. If you specify only *<group>*, the parameters of the related group will be returned.

When querying parameter values, the current parameter values are returned.

A successful control request returns parameter pairs as follows:

Return:

```
HTTP/1.0 200 OK\r\n
Content-Type: text/html\r\n
Content-Length: <length>\r\n
\r\n
<parameter pair>
```

where *<parameter pair>* is

*<parameter>=<value>\r\n*

*[<parameter pair>]*

*<length>* is the actual length of content.

**Example:** Request IP address and its response

Request:

```
http://192.168.0.123/cgi-bin/admin/getparam.cgi?network_ipaddress
```

Response:

```
HTTP/1.0 200 OK\r\n
```

```
Content-Type: text/html\r\n
```

```
Content-Length: 33\r\n
```

```
\r\n
```

```
network.ipaddress=192.168.0.123\r\n
```

## 6. Set Server Parameter Values

**Note:** The access right depends on the URL directory.

**Method:** GET/POST

Syntax:

```
http://<servername>/cgi-bin/<anonymous>/setparam.cgi? <parameter>=<value>
```

```
[&<parameter>=<value>...][&update=<value>][&return=<return page>]
```

```
http://<servername>/cgi-bin/<viewer>/setparam.cgi? <parameter>=<value>
```

```
[&<parameter>=<value>...][&update=<value>] [&return=<return page>]
```

```
http://<servername>/cgi-bin/<operator>/setparam.cgi? <parameter>=<value>
```

```
[&<parameter>=<value>...][&update=<value>] [&return=<return page>]
```

```
http://<servername>/cgi-bin/<admin>/setparam.cgi? <parameter>=<value>
```

```
[&<parameter>=<value>...][&update=<value>] [&return=<return page>]
```

| PARAMETER                         | VALUE             | DESCRIPTION   |
|-----------------------------------|-------------------|---|
| <b>&lt;group&gt;_&lt;name&gt;</b> | value to assigned | Assign <value> to the parameter <group>_<name>.   |
| <b>update</b>                     | <boolean>         | Set to 1 to update all fields (no need to update parameter in each group).  |
| <b>return</b>                     | <return page>     | Redirect to the page <return page> after the parameter is assigned. The <return page> can be a full URL path or relative path according to the current path. If you omit this parameter, it will redirect to an empty page.<br><br>(Note: The return page can be a general HTML file (.htm, .html) or a VIVOTEK server script executable (.vspx) file. It cannot be a CGI commandor have any extra parameters. This parameter must be |

|  |  |   |
|--|--|---|
|  |  | placed at the end of the parameter list |
|--|--|---|

Return:

```
HTTP/1.0 200 OK\r\n
Content-Type: text/html\r\n
Context-Length: <length>\r\n
\r\n
<parameter pair>
```

where &lt;parameter pair&gt; is

&lt;parameter&gt; = &lt;value&gt; \r\n

[&lt;parameter pair&gt;]

Only the parameters that you set and are readable will be returned.

**Example:** Set the IP address of server to 192.168.0.123:

Request:

[http://myserver/cgi-bin/admin/setparam.cgi?network\\_ipaddress=192.168.0.123](http://myserver/cgi-bin/admin/setparam.cgi?network_ipaddress=192.168.0.123)

Response:

```
HTTP/1.0 200 OK\r\n
Content-Type: text/html\r\n
Context-Length: 33\r\n
\r\n
network.ipaddress=192.168.0.123\r\n
```

## 7. Available parameters on the server

Valid values:

| VALID VALUES         | DESCRIPTION  |
|----------------------|--|
| string[<n>]          | Text strings shorter than 'n' characters. The characters "','<, >,&" are invalid.                                |
| string[n~m]          | Text strings longer than 'n' characters and shorter than 'm' characters. The characters "','<, >,&" are invalid. |
| password[<n>]        | The same as string but displays '*' instead.   |
| integer              | Any number between $(-2^{31}-1)$ and $(2^{31}-1)$ .  |
| positive integer     | Any number between 0 and $(2^{32}-1)$ .  |
| <m> ~ <n>            | Any number between 'm' and 'n'.  |
| domain name[<n>]     | A string limited to a domain name shorter than 'n' characters (eg. www.ibm.com).                                 |
| email address [ <n>] | A string limited to an email address shorter than 'n' characters (eg. joe@www.ibm.com).                          |
| ip address           | A string limited to an IP address (eg. 192.168.1.1).   |

|  |  |
|--|--|
| mac address                                | A string limited to contain a MAC address without hyphens or colons.   |
| boolean                                    | A boolean value of 1 or 0 represents [Yes or No], [True or False], [Enable or Disable].                          |
| <value1>,<br><value2>,<br><value3>,<br>... | Enumeration. Only given values are valid.  |
| blank                                      | A blank string.  |
| everything inside <>                       | A description  |
| integer primary key                        | SQLite data type. A 32-bit signed integer. The value is assigned a unique integer by the server.                 |
| text                                       | SQLite data type. The value is a text string, stored using the database encoding (UTF-8, UTF-16BE or UTF-16-LE). |
| coordinate                                 | x, y coordinate (eg. 0,0)  |
| window size                                | window width and height (eg. 800x600)  |

NOTE: The camera should not be restarted when parameters are changed.

## 7.1 system

Group: **system**

| NAME          | VALUE  | DEFAULT                         | SECURITY<br>(get/set) | DESCRIPTION  |
|---------------|--|---------------------------------|-----------------------|--|
| hostname      | string[64]                                       | Mega-Pixel<br>Network<br>Camera | 1/6                   | Host name of server<br>(Network Camera,<br>Wireless Network Camera,<br>Video Server,<br>Wireless Video Server).  |
| ledoff        | <boolean>  | 0                               | 6/6                   | Turn on (0) or turn off (1) all led indicators.  |
| date          | <YYYY/MM/DD>,<br>keep,<br>auto                   | <current<br>date>               | 6/6                   | Current date of system. Set to 'keep' to keep date unchanged. Set to 'auto' to use NTP to synchronize date.  |
| time          | <hh:mm:ss>,<br>keep,<br>auto                     | <current<br>time>               | 6/6                   | Current time of the system. Set to 'keep' to keep time unchanged. Set to 'auto' to use NTP to synchronize time.  |
| datetime      | <MMDDhh<br>mmYYYY.ss<br>>                        | <blank>                         | 6/6                   | Another current time format of the system.   |
| ntp           | <domain<br>name>,<br><ip<br>address>,<br><blank> | <blank>                         | 6/6                   | NTP server.<br>*Do not use "skip to invoke default server" for default value.  |
| timezoneindex | -489 ~ 529                                       | 320                             | 6/6                   | Indicate timezone and area.<br>-480: GMT-12:00 Eniwetok, Kwajalein<br>-440: GMT-11:00 Midway Island,<br>Samoa<br>-400: GMT-10:00 Hawaii<br>-360: GMT-09:00 Alaska<br>-320: GMT-08:00 Las Vegas,<br>San_Francisco,<br>Vancouver<br>-280: GMT-07:00 Mountain Time,<br>Denver |

|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  |  | <p>-281: GMT-07:00 Arizona</p> <p>-240: GMT-06:00 Central America, Central Time, Mexico City, Saskatchewan</p> <p>-200: GMT-05:00 Eastern Time, New York, Toronto</p> <p>-201: GMT-05:00 Bogota, Lima, Quito, Indiana</p> <p>-180: GMT-04:30 Caracas</p> <p>-160: GMT-04:00 Atlantic Time, Canada, La Paz, Santiago</p> <p>-140: GMT-03:30 Newfoundland</p> <p>-120: GMT-03:00 Brasilia, Buenos Aires, Georgetown, Greenland</p> <p>-80: GMT-02:00 Mid-Atlantic</p> <p>-40: GMT-01:00 Azores, Cape_Verde_IS.</p> <p>0: GMT Casablanca, Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London</p> <p>40: GMT 01:00 Amsterdam, Berlin, Rome, Stockholm, Vienna, Madrid, Paris</p> <p>41: GMT 01:00 Warsaw, Budapest, Bern</p> <p>80: GMT 02:00 Athens, Helsinki, Istanbul, Riga</p> <p>81: GMT 02:00 Cairo</p> <p>82: GMT 02:00 Lebanon, Minsk</p> <p>83: GMT 02:00 Israel</p> <p>120: GMT 03:00 Baghdad, Kuwait, Riyadh, Moscow, St. Petersburg, Nairobi</p> <p>121: GMT 03:00 Iraq</p> <p>140: GMT 03:30 Tehran</p> <p>160: GMT 04:00 Abu Dhabi, Muscat, Baku, Tbilisi, Yerevan</p> <p>180: GMT 04:30 Kabul</p> |
|--|--|--|--|--|



|                         |                      |  |     |   |
|-------------------------|----------------------|--|-----|---|
|                         |                      |  |     | <p>200: GMT 05:00 Ekaterinburg, Islamabad, Karachi, Tashkent</p> <p>220: GMT 05:30 Calcutta, Chennai, Mumbai, New Delhi</p> <p>230: GMT 05:45 Kathmandu</p> <p>240: GMT 06:00 Almaty, Novosibirsk, Astana, Dhaka, Sri Jayawardenepura</p> <p>260: GMT 06:30 Rangoon</p> <p>280: GMT 07:00 Bangkok, Hanoi, Jakarta, Krasnoyarsk</p> <p>320: GMT 08:00 Beijing, Chongqing, Hong Kong, Kuala Lumpur, Singapore, Taipei</p> <p>360: GMT 09:00 Osaka, Sapporo, Tokyo, Seoul, Yakutsk</p> <p>380: GMT 09:30 Adelaide, Darwin</p> <p>400: GMT 10:00 Brisbane, Canberra, Melbourne, Sydney, Guam, Vladivostok</p> <p>440: GMT 11:00 Magadan, Solomon Is., New Caledonia</p> <p>480: GMT 12:00 Aucklan, Wellington, Fiji, Kamchatka, Marshall Is.</p> <p>520: GMT 13:00 Nuku'Alofa</p> |
| daylight_enable         | <boolean>            | 0  | 6/6 | Enable automatic daylight saving time in time zone.   |
| daylight_dstactualmode  | < positive integer > | 1~4  | 6/7 | Check if current time is under daylight saving time.<br>(Used internally)   |
| daylight_auto_begintime | string[19]           | NONE   | 6/7 | Display the current daylight saving start time.   |
| daylight_auto_endtime   | string[19]           | NONE   | 6/7 | Display the current daylight saving end time.   |
| daylight_timezones      | string               | ,-360,-320,<br>-280,-240,<br>-241,-200,<br>-201,-160,<br>-140,-120,<br>-80,-40,0,<br>40,41,80, | 6/6 | List time zone index which support daylight saving time.  |

|                   |   |  |     |   |
|-------------------|---|--|-----|---|
|                   |   | 81,82,83,<br>120,140,<br>380,400,48<br>0 |     |   |
| updateinterval    | 0,<br>3600,<br>86400,<br>604800,<br>2592000 | 0  | 6/6 | 0 to Disable automatic time adjustment, otherwise, it indicates the seconds between NTP automatic update intervals.   |
| restore           | 0,<br><positive<br>integer>                 | N/A                                      | 7/6 | Restore the system parameters to default values after <value> seconds.  |
| reset             | 0,<br><positive<br>integer>                 | N/A                                      | 7/6 | Restart the server after <value> seconds if <value> is non-negative.  |
| restoreexceptnet  | <Any<br>value>                              | N/A                                      | 7/6 | Restore the system parameters to default values except (ipaddress, subnet, router, dns1, dns2, pppoe). This command can cooperate with other "restoreexceptXYZ" commands. When cooperating with others, the system parameters will be restored to the default value except for a union of the combined results. |
| restoreexceptdst  | <Any<br>value>                              | N/A                                      | 7/6 | Restore the system parameters to default values except all daylight saving time settings. This command can cooperate with other "restoreexceptXYZ" commands. When cooperating with others, the system parameters will be restored to default values except for a union of combined results.                     |
| restoreexceptlang | <Any<br>Value>                              | N/A                                      | 7/6 | Restore the system parameters to default values except the custom language file the user has uploaded. This command can cooperate with other "restoreexceptXYZ" commands. When cooperating with others, the system parameters will be restored to   |

|                  |               |     |     |   |
|------------------|---------------|-----|-----|---|
|                  |               |     |     | the default value except for a union of the combined results.   |
| restoreexceptvdp | <integer<br>> | N/A | 7/6 | Restore the system parameters to default values except the vdp parameters and VADP modules that stored in the system.<br><br>This command can cooperate with other "restoreexceptXYZ" commands. When cooperating with others, the system parameters will be restored to the default value except for a union of the combined results. |

## 7.1.1 system.info

Subgroup of **system: info** (The fields in this group are unchangeable.)

| NAME                    | VALUE            | DEFAULT  | SECURITY<br>(get/set) | DESCRIPTION  |
|-------------------------|------------------|--|-----------------------|--|
| modelName               | string[40]       | IP8365EH/<br>IP8355EH  | 0/7                   | Internal model name of the server  |
| extendedmodelName       | string[40]       | IP8365EH/<br>IP8355EH  | 0/7                   | ODM specific model name of server (eg. DCS-5610). If it is not an ODM model, this field will be equal to "modelName" |
| serialnumber            | <mac<br>address> | <product<br>mac<br>address>  | 0/7                   | 12 characters MAC address (without hyphens).   |
| firmwareversion         | string[40]       | <product<br>dependent>   | 0/7                   | Firmware version, including model, company, and version number in the format: <MODEL-BRAND-VERSION>                  |
| language_count          | <integer>        | 9  | 0/7                   | Number of webpage languages available on the server.   |
| language_i<0~(count-1)> | string[16]       | language_i0<br>: English<br>language_i1<br>: Deutsch<br>language_i2<br>: Español | 0/7                   | Available language lists.  |

|                                  |           |  |     |  |
|----------------------------------|-----------|--|-----|--|
|                                  |           | language_i3<br>: Français<br>language_i4<br>: Italiano<br>language_i5<br>: 日本語<br>language_i6<br>: Português<br>language_i7<br>: 简体中文<br>language_i8<br>: 繁體中文 |     |  |
| customlanguage_maxcount          | <integer> | 1  | 0/6 | Maximum number of custom languages supported on the server.        |
| customlanguage_count             | <integer> | 0  | 0/6 | Number of custom languages which have been uploaded to the server. |
| customlanguage_i<0~(maxcount-1)> | string    | <blank>  | 0/6 | Custom language name.  |

## 7.2 status

Group: **status**

| NAME                                   | VALUE     | DEFAULT             | SECURITY<br>(get/set) | DESCRIPTION   |
|--|-----------|---------------------|-----------------------|---|
| di_i<0~(ndi-1)><br><product dependent> | <boolean> | 0                   | 1/7                   | 0 => Inactive, normal<br>1 => Active, triggered<br>(capability.ndi > 0) |
| do_i<0~(ndo-1)><br><product dependent> | <boolean> | 0                   | 1/7                   | 0 => Inactive, normal<br>1 => Active, triggered<br>(capability.ndo > 0) |
| onlinenum_rtsp                         | integer   | 0                   | 6/7                   | Current number of RTSP connections.                                     |
| onlinenum_httppush                     | integer   | 0                   | 6/7                   | Current number of HTTP push server connections.                         |
| eth_i0                                 | <string>  | <product dependent> | 1/7                   | Get network information from mii-tool.                                  |
| vi_i<0~(nvi-1)><br><product dependent> | <boolean> | 0                   | 1/7                   | Virtual input<br>0 => Inactive<br>1 => Active<br>(capability.nvi > 0)   |

## 7.3 digital input behavior define

Group: **di\_i<0~(ndi-1)>** (*capability.ndi > 0*)

| NAME        | VALUE        | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION  |
|-------------|--------------|---------|-----------------------|--|
| normalstate | high,<br>low | high    | 1/1                   | Indicates open circuit or closed circuit (inactive status) |

## 7.4 digital output behavior define

Group: **do\_i<0~(ndo-1)>** (*capability.ndo > 0*)

| NAME        | VALUE             | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION   |
|-------------|-------------------|---------|-----------------------|---|
| normalstate | open,<br>grounded | open    | 1/1                   | Indicate open circuit or closed circuit (inactive status) |

## 7.5 security

Group: security

| NAME                   | VALUE                       | DEFAULT  | SECURITY<br>(get/set) | DESCRIPTION   |
|------------------------|-----------------------------|----------|-----------------------|---|
| privilege_do           | view, operator,<br>admin    | operator | 1/6                   | Indicate which privileges and above can control digital output<br>( <i>capability.ndo &gt; 0</i> )                              |
| privilege_camctrl      | view, operator,<br>admin    | view     | 1/6                   | Indicate which privileges and above can control PTZ<br>( <i>capability.ptzenabled &gt; 0</i> or <i>capability.eptz &gt; 0</i> ) |
| user_i0_name           | string[64]                  | root     | 6/7                   | User name of root   |
| user_i<1~20>_name      | string[64]                  | <blank>  | 6/7                   | User name   |
| user_i0_pass           | password[64]                | <blank>  | 6/6                   | Root password   |
| user_i<1~20>_pass      | password[64]                | <blank>  | 7/6                   | User password   |
| user_i0_privilege      | view,<br>operator,<br>admin | admin    | 6/7                   | Root privilege  |
| user_i<1~20>_privilege | view,<br>operator,<br>admin | <blank>  | 6/6                   | User privilege  |

## 7.6 network

Group: **network**

| NAME         | VALUE              | DEFAULT             | SECURITY<br>(get/set) | DESCRIPTION  |
|--------------|--------------------|---------------------|-----------------------|--|
| preprocesses | <positive integer> | <blank>             | 6/6                   | <p>An 32-bit integer, each bit can be set separately as follows:</p> <ul style="list-style-type: none"> <li>Bit 0 =&gt; HTTP service;</li> <li>Bit 1=&gt; HTTPS service;</li> <li>Bit 2=&gt; FTP service;</li> <li>Bit 3 =&gt; Two way audio and RTSP Streaming service;</li> </ul> <p>To stop service before changing its port settings. It's <b>recommended</b> to set this parameter when change a service port to the port occupied by another service currently. Otherwise, the service may fail.</p> <p>Stopped service will auto-start after changing port settings.</p> <p>Ex:</p> <p>Change HTTP port from 80 to 5556, and change RTP port for video from 5556 to 20480.</p> <p>Then, set preprocess=9 to stop both service first.</p> <p>"/cgi-bin/admin/setparam.cgi?<br/>network_preprocess=9&amp;network_http_port=5556&amp;<br/>network_rtp_videoport=20480"</p> |
| type         | lan,<br>pppoe      | lan                 | 6/6                   | Network connection type.   |
| resetip      | <boolean>          | 1                   | 6/6                   | <p>1 =&gt; Get ipaddress, subnet, router, dns1, dns2 from DHCP server at next reboot.</p> <p>0 =&gt; Use preset ipaddress, subnet, rounter, dns1, and dns2.</p>  |
| ipaddress    | <ip address>       | <product dependent> | 6/6                   | IP address of server.  |
| subnet       | <ip address>       | <blank>             | 6/6                   | Subnet mask.   |
| router       | <ip address>       | <blank>             | 6/6                   | Default gateway.   |
| dns1         | <ip                | <blank>             | 6/6                   | Primary DNS server.  |

|       |                 |         |     |                        |
|-------|-----------------|---------|-----|------------------------|
|       | address>        |         |     |                        |
| dns2  | <ip<br>address> | <blank> | 6/6 | Secondary DNS server.  |
| wins1 | <ip<br>address> | <blank> | 6/6 | Primary WINS server.   |
| wins2 | <ip<br>address> | <blank> | 6/6 | Secondary WINS server. |

## 7.6.1 802.1x

Subgroup of **network: ieee8021x**(capability.protocol.ieee8021x > 0)

| NAME               | VALUE                | DEFAULT  | SECURITY<br>(get/set) | DESCRIPTION   |
|--------------------|----------------------|----------|-----------------------|---|
| enable             | <boolean>            | 0        | 6/6                   | Enable/disable IEEE 802.1x                          |
| eapmethod          | eap-peap,<br>eap-tls | eap-peap | 6/6                   | Selected EAP method                                 |
| identity_peap      | String[64]           | <blank>  | 6/6                   | PEAP identity                                       |
| identity_tls       | String[64]           | <blank>  | 6/6                   | TLS identity  |
| password           | String[253]          | <blank>  | 6/6                   | Password for TLS                                    |
| privatekeypassword | String[253]          | <blank>  | 6/6                   | Password for PEAP                                   |
| ca_exist           | <boolean>            | 0        | 6/6                   | CA installed flag                                   |
| ca_time            | <integer>            | 0        | 6/7                   | CA installed time. Represented in EPOCH             |
| ca_size            | <integer>            | 0        | 6/7                   | CA file size (in bytes)                             |
| certificate_exist  | <boolean>            | 0        | 6/6                   | Certificate installed flag (for TLS)                |
| certificate_time   | <integer>            | 0        | 6/7                   | Certificate installed time.<br>Represented in EPOCH |
| certificate_size   | <integer>            | 0        | 6/7                   | Certificate file size (in bytes)                    |
| privatekey_exist   | <boolean>            | 0        | 6/6                   | Private key installed flag (for TLS)                |
| privatekey_time    | <integer>            | 0        | 6/7                   | Private key installed time.<br>Represented in EPOCH |
| privatekey_size    | <integer>            | 0        | 6/7                   | Private key file size (in bytes)                    |

## 7.6.2 QOS

Subgroup of **network: qos\_cos** (capability.protocol.qos.cos > 0)

| NAME        | VALUE     | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION                                      |
|-------------|-----------|---------|-----------------------|--|
| enable      | <boolean> | 0       | 6/6                   | Enable/disable CoS (IEEE 802.1p)                 |
| vlanid      | 1~4095    | 1       | 6/6                   | VLAN ID  |
| video       | 0~7       | 0       | 6/6                   | Video channel for CoS                            |
| audio       | 0~7       | 0       | 6/6                   | Audio channel for CoS<br>(capability.naudio > 0) |
| eventalarm  | 0~7       | 0       | 6/6                   | Event/alarm channel for CoS                      |
| management  | 0~7       | 0       | 6/6                   | Management channel for CoS                       |
| eventtunnel | 0~7       | 0       | 6/6                   | Event/Control channel for CoS                    |

Subgroup of **network: qos\_dscp** (capability.protocol.qos.dscp > 0)

| NAME        | VALUE     | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION                                       |
|-------------|-----------|---------|-----------------------|---|
| enable      | <boolean> | 0       | 6/6                   | Enable/disable DSCP                               |
| video       | 0~63      | 0       | 6/6                   | Video channel for DSCP                            |
| audio       | 0~63      | 0       | 6/6                   | Audio channel for DSCP<br>(capability.naudio > 0) |
| eventalarm  | 0~63      | 0       | 6/6                   | Event/alarm channel for DSCP                      |
| management  | 0~63      | 0       | 6/6                   | Management channel for DSCP                       |
| eventtunnel | 0~63      | 0       | 6/6                   | Event/Control channel for DSCP                    |

## 7.6.3 IPV6

Subgroup of **network: ipv6** (capability.protocol.ipv6 > 0)

| NAME           | VALUE        | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION                                 |
|----------------|--------------|---------|-----------------------|---|
| enable         | <boolean>    | 0       | 6/6                   | Enable IPv6.                                |
| addonipaddress | <ip address> | <blank> | 6/6                   | IPv6 IP address.                            |
| addonprefixlen | 0~128        | 64      | 6/6                   | IPv6 prefix length.                         |
| addonrouter    | <ip address> | <blank> | 6/6                   | IPv6 router address.                        |
| addondns       | <ip address> | <blank> | 6/6                   | IPv6 DNS address.                           |
| allowoptional  | <boolean>    | 0       | 6/6                   | Allow manually setup of IP address setting. |



## 7.6.4 FTP

Subgroup of **network**: **ftp**

| NAME | VALUE          | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION            |
|------|----------------|---------|-----------------------|------------------------|
| port | 21, 1025~65535 | 21      | 6/6                   | Local ftp server port. |

## 7.6.5 HTTP

Subgroup of **network**: **http**

| NAME             | VALUE            | DEFAULT     | SECURITY<br>(get/set) | DESCRIPTION   |
|------------------|------------------|-------------|-----------------------|---|
| port             | 80, 1025 ~ 65535 | 80          | 1/6                   | HTTP port.  |
| alternateport    | 1025~65535       | 8080        | 6/6                   | Alternate HTTP port.  |
| authmode         | basic,<br>digest | basic       | 1/6                   | HTTP authentication mode.   |
| s0_accessname    | string[32]       | video.mjpg  | 1/6                   | HTTP server push access name for stream 1.<br>(capability.protocol.spush_mjpeg = 1 and capability.nmediastream > 0) |
| s1_accessname    | string[32]       | video2.mjpg | 1/6                   | HTTP server push access name for stream 2.<br>(capability.protocol.spush_mjpeg = 1 and capability.nmediastream > 1) |
| s2_accessname    | string[32]       | video3.mjpg | 1/6                   | Http server push access name for stream 3<br>(capability.protocol.spush_mjpeg = 1 and capability.nmediastream > 2)  |
| anonymousviewing | <boolean>        | 0           | 1/6                   | Enable anonymous streaming viewing.   |

## 7.6.6 HTTPS port

Subgroup of **network**: **https\_port** ([capability.protocol.https > 0](#))

| NAME | VALUE             | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION |
|------|-------------------|---------|-----------------------|-------------|
| port | 443, 1025 ~ 65535 | 443     | 1/6                   | HTTPS port. |

## 7.6.7 RTSP

Subgroup of **network**: **rtsp** (`capability.protocol.rtsp > 0`)

| NAME             | VALUE                        | DEFAULT   | SECURITY<br>(get/set) | DESCRIPTION   |
|------------------|------------------------------|-----------|-----------------------|---|
| port             | 554, 1025 ~<br>65535         | 554       | 1/6                   | RTSP port.<br>( <code>capability.protocol.rtsp=1</code> )   |
| anonymousviewing | <boolean>                    | 0         | 1/6                   | Enable anonymous streaming viewing.   |
| authmode         | disable,<br>basic,<br>digest | disable   | 1/6                   | RTSP authentication mode.<br>( <code>capability.protocol.rtsp=1</code> )  |
| s0_accessname    | string[32]                   | live.sdp  | 1/6                   | RTSP access name for stream1.<br>( <code>capability.protocol.rtsp=1</code> and<br><code>capability.nmediastream &gt; 0</code> ) |
| s1_accessname    | string[32]                   | live2.sdp | 1/6                   | RTSP access name for stream2.<br>( <code>capability.protocol.rtsp=1</code> and<br><code>capability.nmediastream &gt; 1</code> ) |
| s2_accessname    | string[32]                   | live3.sdp | 1/6                   | RTSP access name for stream3<br>( <code>capability.protocol.rtsp=1</code> and<br><code>capability.nmediastream &gt; 2</code> )  |
| s0_audiotrack    | <boolean>                    | -1        | 6/6                   | Enable audio for stream1.   |
| s1_audiotrack    | <boolean>                    | -1        | 6/6                   | Enable audio for stream2.   |
| s2_audiotrack    | <boolean>                    | -1        | 6/6                   | Enable audio for stream3.   |

### 7.6.7.1 RTSP multicast

Subgroup of **network\_rtsp\_s<0~(n-1)>**: **multicast**, n is stream count (`capability.protocol.rtp.multicast > 0`)

| NAME            | VALUE        | DEFAULT  | SECURITY<br>(get/set) | DESCRIPTION              |
|-----------------|--------------|--|-----------------------|--------------------------|
| alwaysmulticast | <boolean>    | 0  | 4/4                   | Enable always multicast. |
| ipaddress       | <ip address> | For n=0,<br>239.128.1.99<br>For n=1,<br>239.128.1.100,<br>and so on. | 4/4                   | Multicast IP address.    |
| videoport       | 1025 ~ 65535 | 5560+n*2   | 4/4                   | Multicast video port.    |
| audioport       | 1025 ~ 65535 | 5562+n*2   | 4/4                   | Multicast audio port.    |

|     |         |    |     |                               |
|-----|---------|----|-----|-------------------------------|
|     |         |    |     | (capability.naudio > 0)       |
| tll | 1 ~ 255 | 15 | 4/4 | Mutlicast time to live value. |

## 7.6.8 SIP port

Subgroup of **network: sip** (capability.protocol.sip > 0)

| NAME | VALUE        | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION |
|------|--------------|---------|-----------------------|-------------|
| port | 1025 ~ 65535 | 5060    | 1/6                   | SIP port.   |

## 7.6.9 RTP port

Subgroup of **network: rtp**

| NAME      | VALUE        | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION  |
|-----------|--------------|---------|-----------------------|--|
| videoport | 1025 ~ 65535 | 5556    | 6/6                   | Video channel port for RTP.<br>(capability.protocol.rtp_unicast=1) |
| audioport | 1025 ~ 65535 | 5558    | 6/6                   | Audio channel port for RTP.<br>(capability.protocol.rtp_unicast=1) |

## 7.6.10 PPPoE

Subgroup of **network: pppoe** (capability.protocol.pppoe > 0)

| NAME | VALUE        | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION              |
|------|--------------|---------|-----------------------|--------------------------|
| user | string[128]  | <blank> | 6/6                   | PPPoE account user name. |
| pass | password[64] | <blank> | 6/6                   | PPPoE account password.  |

## 7.7 IP Filter

Group: ipfilter

| NAME          | VALUE      | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION                            |
|---------------|------------|---------|-----------------------|--|
| enable        | <boolean>  | 0       | 6/6                   | Enable access list filtering.          |
| admin_enable  | <boolean>  | 0       | 6/6                   | Enable administrator IP address.       |
| admin_ip      | String[43] | <blank> | 6/6                   | Administrator IP address.              |
| maxconnection | 1~10       | 10      | 6/6                   | Maximum number of concurrent streaming |

|                 |  |         |     |  |
|-----------------|--|---------|-----|--|
|                 |  |         |     | connection(s).                               |
| type            | 0, 1   | 1       | 6/6 | Ipfilter policy :<br>0 => allow<br>1 => deny |
| ipv4list_i<0~9> | Single address:<br><ip address><br>Network address:<br><ip address /<br>network mask><br>Range<br>address: <start ip<br>address - end ip<br>address> | <blank> | 6/6 | IPv4 address list.                           |
| ipv6list_i<0~9> | String[43]   | <blank> | 6/6 | IPv6 address list.                           |

## 7.8 Video input

Group: **videoin**

| NAME          | VALUE                     | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION   |
|---------------|---------------------------|---------|-----------------------|---|
| cmosfreq      | 50, 60                    | 60      | 4/4                   | CMOS frequency.<br>(capability.videoin.type=2)  |
| whitebalance  | auto,<br>manual,rbgain    | auto    | 4/4                   | "auto" indicates auto white balance.<br>"manual" indicates keep current<br>value.<br>"rbgain" indicates using rgain and<br>gbain. |
| exposurelevel | 0~12                      | 6       | 4/4                   | Exposure level  |
| autoiris      | <boolean>                 | 0       | 4/4                   | Enable auto Iris.   |
| irismode      | fixed, indoor,<br>outdoor | outdoor | 4/4                   | Video Iris mode.  |
| enableblc     | <boolean>                 | 0       | 4/4                   | Enable backlight compensation.  |
| color         | 0, 1                      | 1       | 4/4                   | 0 => monochrome<br>1 => color   |
| flip          | <boolean>                 | 0       | 4/4                   | Flip the image.   |
| mirror        | <boolean>                 | 0       | 4/4                   | Mirror the image.   |
| ptzstatus     | <integer>                 | 0       | 1/7                   | A 32-bit integer, each bit can be set<br>separately as follows:   |

|                  |                                |         |     |   |
|------------------|--------------------------------|---------|-----|---|
|                  |                                |         |     | Bit 0 => Support camera control function; 0(not support), 1(support)<br>Bit 1 => <b>Built-in</b> or <b>external</b> camera; 0 (external), 1(built-in)<br>Bit 2 => Support <b>pan</b> operation; 0(not support), 1(support)<br>Bit 3 => Support <b>tilt</b> operation; 0(not support), 1(support)<br>Bit 4 => Support <b>zoom</b> operation; 0(not support), 1(support)<br>Bit 5 => Support <b>focus</b> operation; 0(not support), 1(support) |
| text             | string[64]                     | <blank> | 4/4 | Enclose caption.  |
| imprinttimestamp | <boolean>                      | 0       | 4/4 | Overlay time stamp on video.  |
| maxexposure      | 1~10000<br><product dependent> | 30      | 4/4 | Maximum exposure time.  |
| enablepreview    | <boolean>                      | 0       | 4/4 | Usage for UI of exposure settings.<br>Preview settings of video profile.  |

## 7.8.1 Video input setting per channel

Group: **videoin\_c<0~(n-1)>** for n channel products, and m is stream number

| NAME          | VALUE   | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION   |
|---------------|---|---------|-----------------------|---|
| cmosfreq      | 50, 60  | 60      | 4/4                   | CMOS frequency.<br>(capability.videoin.type=2)  |
| whitebalance  | auto,<br>manual,rbgain<br><product dependent> | auto    | 4/4                   | "auto" indicates auto white balance.<br>"manual" indicates keep current value.<br>"rbgain" indicates using rgain and gbain. |
| rgain         | 0~100   | 30      | 4/4                   | Manual set rgain value of gain control setting.   |
| bgain         | 0~100   | 30      | 4/4                   | Manual set bgain value of gain control setting.   |
| exposurelevel | 0~12  | 6       | 4/4                   | Exposure level  |
| autoiris      | 0~1   | 0       | 4/4                   | set 1 to enable auto iris, set 0  |

|                                 |  |  |     |   |
|---------------------------------|--|--|-----|---|
|                                 |  |  |     | to disable auto iris.   |
| irismode                        | fixed, indoor,<br>outdoor                      | outdoor  | 4/4 | Video Iris mode.  |
| piris_mode                      | manual, indoor,<br>outdoor                     | outdoor  | 1/4 | PIris mode<br>manual = 0<br>indoor=1<br>outdoor=2                           |
| piris_position                  | 1~100  | 1  | 1/4 | Position of piris   |
| enableblc                       | 0~1  | 0  | 4/4 | Enable backlight<br>compensation  |
| maxgain                         | 0~100  | 100  | 4/4 | Manual set maximum gain<br>value.   |
| mingain                         | 0~100  | 0  | 4/4 | Manual set minimum gain<br>value.   |
| color                           | 0, 1   | 1  | 4/4 | 0 => monochrome<br>1 => color   |
| flip                            | <boolean>                                      | 0  | 4/4 | Flip the image.   |
| mirror                          | <boolean>                                      | 0  | 4/4 | Mirror the image.   |
| text                            | string[64]                                     | <blank>  | 1/4 | Enclose caption.  |
| imprnttimestamp                 | <boolean>                                      | 0  | 4/4 | Overlay time stamp on video.  |
| textonvideo_position            | top, bottom                                    | Top  | 4/4 | Text on video string position   |
| textonvideo_size                | 15, 25, 30                                     | 15   | 4/4 | Text on video font size   |
| exposuremode                    | auto, fixed                                    | auto   | 4/4 | Exposure mode   |
| maxexposure                     | 1~ 10000                                       | 30   | 4/4 | Maximum exposure time.  |
| minexposure                     | 480~ 10000                                     | 10000  | 4/4 | Minimum exposure time.  |
| enablepreview                   | <boolean>                                      | 0  | 1/4 | Usage for UI of exposure<br>settings. Preview settings of<br>video profile. |
| s<0~(m-1)>_codectype            | mjpeg, h264                                    | H264   | 1/4 | Video codec type.   |
| s<0~(m-1)>_resolution           | Reference<br>capability_vide<br>oin_resolution | IP8365:<br>s0:1920x1080<br>s1:640x360<br>IP8355:<br>s0:1280x1024<br>s1:640x480 | 1/4 | Video resolution in pixels.   |
| s<0~(m-1)>_h264_intra<br>period | 250, 500,<br>1000, 2000,<br>3000, 4000         | 1000   | 4/4 | Intra frame period in<br>milliseconds.                                      |

|                                  |                             |  |     |   |
|----------------------------------|-----------------------------|--|-----|---|
| s<0~(m-1)>_h264_ratecontrolmode  | cbr, vbr                    | cbr  | 4/4 | cbr, constant bitrate<br>vbr, fix quality   |
| s<0~(m-1)>_h264_quant            | 1~5,<br>99, 100             | 3  | 4/4 | Quality of video when choosing vbr in "ratecontrolmode".<br>99 is the customized manual input setting.<br>1 = worst quality, 5 = best quality.<br>100 is percentage mode. |
| s<0~(m-1)>_h264_qvalue           | 10~51                       | 31   | 4/4 | Manual video quality level input.<br>(s<0~(m-1)>_h264_quant = 99)   |
| s<0~(m-1)>_h264_qppercent        | 1~100                       | 50   | 4/4 | Manual video quality level input.<br>(s<0~(m-1)>_h264_quant = 100)  |
| s<0~(m-1)>_h264_bitrate          | 4000~4000000<br>00          | IP8365:<br>s0:6000000<br>s1:512000<br>IP8355:<br>s0:3000000<br>s1:512000 | 4/4 | Set bit rate in bps when choosing cbr in "ratecontrolmode".   |
| s<0~(m-1)>_h264_maxvbrbitrate    | 1000~4000000<br>00          | 40000000   | 4/4 | Set bit rate in bps when choosing vbr in "ratecontrolmode".   |
| s<0~(m-1)>_h264_maxframe         | 1,2,3,5,8,10,12,15,20,25,30 | s0:30<br>s1:15   | 1/4 | Set maximum frame rate in fps (for h264).<br>3M : 1~30fps<br>2M : 1~60fps<br>(for NTSC or 60Hz CMOS)  |
| s<0~(m-1)>_h264_profile          | 0~2                         | 1  | 1/4 | Indicate H264 profiles<br>0: baseline<br>1: main profile<br>2: high profile   |
| s<0~(m-1)>_h264_prioritypolicy   | framerate,imagequality      | s0:framerate<br>s1:imagequality  | 4/4 | Set prioritypolicy  |
| s<0~(m-1)>_mjpeg_ratecontrolmode | cbr, vbr                    | vbr  | 4/4 | cbr, constant bitrate<br>vbr, fix quality   |

|                                 |                             |   |     |   |
|---------------------------------|-----------------------------|---|-----|---|
| s<0~(m-1)>_mjpeg_quant          | 1~5,<br>99, 100             | 3   | 4/4 | Quality of JPEG video.<br>99 is the customized manual input setting.<br>1 = worst quality, 5 = best quality.<br>100 is percentage mode. |
| s<0~(m-1)>_mjpeg_qvalue         | 2~97                        | 49  | 4/4 | Manual video quality level input.<br>(s<0~(m-1)>_mjpeg_quant = 99)  |
| s<0~(m-1)>_mjpeg_qpercent       | 1~100                       | 50  | 4/4 | Manual video quality level input.<br>(s<0~(m-1)>_mjpeg_quant = 100)   |
| s<0~(m-1)>_mjpeg_bitrate        | 4000~4000000<br>00          | IP8365:<br>s0:14000000<br>s1:512000<br>IP8355:<br>s0:6000000<br>s1:512000 | 4/4 | Set bit rate in bps when choosing cbr in "ratecontrolmode".   |
| s<0~(m-1)>_mjpeg_maxvbrbitrate  | 1000~4000000<br>00          | 40000000  | 4/4 | Set bit rate in bps when choosing vbr in "ratecontrolmode".   |
| s<0~(m-1)>_mjpeg_maxframe       | 1,2,3,5,8,10,12,15,20,25,30 | s0:10<br>s1:15  | 1/4 | Set maximum frame rate in fps (for JPEG).<br>3M : 1~30fps<br>2M : 1~60fps<br>(for NTSC or 60Hz CMOS)                                    |
| s<0~(m-1)>_mjpeg_prioritypolicy | framerate,imageequality     | s0:framerate<br>s1:imagequality   | 4/4 | Set prioritypolicy  |
| wdr_mode                        | 0~1                         | 1   | 4/4 | IP8365 : WDR Pro.<br>IP8355 : WDR Pro II.<br>0: off<br>1: on  |
| wdr_strength                    | 0~2                         | 1   | 4/4 | IP8365 : WDR Pro strength.<br>IP8355 : WDR Pro II strength.<br>0: low<br>1: medium  |



2: high

## 7.8.1.1 Alternative video input profiles per channel

In addition to the primary setting of video input, there can be alternative profile video input setting for each channel which might be for different scene of light (daytime or nighttime).

Group: **videoin\_c0\_profile\_i<0~(m-1)>** (**capability.nvideoinprofile > 0**)

| NAME           | VALUE                      | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION  |
|----------------|----------------------------|---------|-----------------------|--|
| enable         | <boolean>                  | 0       | 4/4                   | Enable/disable this profile setting                          |
| policy         | day,<br>night,<br>schedule | night   | 4/4                   | The mode which the profile is applied to.                    |
| begintime      | hh:mm                      | 18:00   | 4/4                   | Begin time of schedule mode.                                 |
| endtime        | hh:mm                      | 06:00   | 4/4                   | End time of schedule mode.                                   |
| exposuremode   | auto, fixed                | auto    | 4/4                   | Exposure Mode  |
| maxexposure    | 1~10000                    | 30      | 4/4                   | Maximum exposure time.                                       |
| minexposure    | 480~10000                  | 10000   | 4/4                   | Minimum exposure time.                                       |
| enableblc      | <boolean>                  | 0       | 4/4                   | Enable backlight compensation.                               |
| exposurelevel  | 0~12                       | 6       | 4/4                   | Exposure level   |
| maxgain        | 0~100                      | 100     | 4/4                   | Manual set maximum gain value.                               |
| mingain        | 0~100                      | 0       | 4/4                   | Manual set minimum gain value.                               |
| autoiris       | <boolean>                  | 0       | 4/4                   | Enable auto Iris.  |
| piris_mode     | manual, indoor,<br>outdoor | outdoor | 1/4                   | PIris mode<br>manual = 0<br>indoor=1<br>outdoor=2            |
| piris_position | 1~100                      | 1       | 1/4                   | Position of piris  |
| irismode       | fixed, indoor,<br>outdoor  | outdoor | 4/4                   | Video Iris mode.   |
| wdr_mode       | 0~1                        | 1       | 4/4                   | IP8365 : WDR Pro.<br>IP8355 : WDR Pro II.<br>0: off<br>1: on |
| wdr_strength   | 0~2                        | 1       | 4/4                   | IP8365 : WDR Pro strength.<br>IP8355: WDR Pro II strength.   |

|  |  |  |  |                                |
|--|--|--|--|--------------------------------|
|  |  |  |  | 0: low<br>1: medium<br>2: high |
|--|--|--|--|--------------------------------|

## 7.9 Video input preview

The temporary settings for video preview

Group: videoinputpreview

| NAME           | VALUE                      | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION                                       |
|----------------|----------------------------|---------|-----------------------|---|
| exposuremode   | auto, fixed                | auto    | 4/4                   | Exposure Mode                                     |
| maxexposure    | 1~10000                    | 30      | 4/4                   | Maximum exposure time.                            |
| minexposure    | 480~10000                  | 10000   | 4/4                   | Minimum exposure time.                            |
| exposurelevel  | 0~12                       | 6       | 4/4                   | Exposure level                                    |
| enableblc      | <boolean>                  | 0       | 4/4                   | Enable backlight compensation.                    |
| irismode       | fixed, indoor,<br>outdoor  | outdoor | 4/4                   | Video Iris mode.                                  |
| piris_mode     | manual, indoor,<br>outdoor | outdoor | 1/4                   | PIris mode<br>manual = 0<br>indoor=1<br>outdoor=2 |
| piris_position | 1~100                      | 1       | 1/4                   | Position of piris                                 |
| wdr_mode       | 0~1                        | 1       | 4/4                   | WDR enhanced.<br>0: off<br>1: on                  |
| wdr_strength   | 0~2                        | 1       | 4/4                   | WDR enhanced.<br>0: low<br>1: medium<br>2: high   |
| maxgain        | 0~100                      | 100     | 4/4                   | Manual set maximum gain value.                    |
| mingain        | 0~100                      | 0       | 4/4                   | Manual set minimum gain value.                    |
| autoiris       | <boolean>                  | 0       | 4/4                   | Enable auto Iris.                                 |

## 7.10 IR cut control

Group: **ircutcontrol**(capability.nvideoinprofile> 0)

| NAME             | VALUE                                      | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION  |
|------------------|--|---------|-----------------------|--|
| mode             | auto,<br>day,<br>night,<br>di,<br>schedule | auto    | 6/6                   | Set IR cut control mode                                  |
| daymodebegintime | 00:00~23:59                                | 07:00   | 6/6                   | Day mode begin time                                      |
| daymodeendtime   | 00:00~23:59                                | 18:00   | 6/6                   | Day mod end time   |
| disableirled     | <boolean>                                  | 0       | 6/6                   | Enable/disable built-in IR led<br>(capability.ir > 0)    |
| enableextled     | <boolean>                                  | 0       | 1/6                   | Enable/disable external IR led<br>(capability.extir > 0) |
| bwmode           | <boolean>                                  | 1       | 6/6                   | Switch to B/W in night mode if enabled                   |
| sensitivity      | low,<br>normal,<br>high                    | normal  | 6/6                   | Sensitivity of light sensor                              |

## 7.11 Image setting per channel

Group: **image\_c<0~(n-1)>** for n channel products

| NAME              | VALUE    | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION  |
|-------------------|----------|---------|-----------------------|--|
| brightness        | -5~5,100 | 100     | 4/4                   | Adjust brightness of image according to mode settings. |
| saturation        | -5~5,100 | 100     | 4/4                   | Adjust saturation of image according to mode settings. |
| contrast          | -5~5,100 | 100     | 4/4                   | Adjust contrast of image according to mode settings.   |
| sharpness         | -3~3,100 | 100     | 4/4                   | Adjust sharpness of image according to mode settings.  |
| brightnesspercent | 0~100    | 0       | 4/4                   | Adjust brightnesspercent of image                      |
| saturationpercent | 0~100    | 50      | 4/4                   | Adjust saturation value of                             |

|                              |                            |       |     |  |
|------------------------------|----------------------------|-------|-----|--|
|                              |                            |       |     | percentage when saturation=100                         |
| contrastpercent              | 0~100                      | 50    | 4/4 | Adjust contrastpercent of image                        |
| sharpnesspercent             | 0~100                      | 50    | 4/4 | Adjust sharpnessvalue of percentage when sharpness=100 |
| gammacurve                   | 0~100                      | 0     | 4/4 | Gamma curve.   |
| lowlightmode                 | <boolean>                  | 1     | 4/4 | Enable/disable low light mode.                         |
| dnr_mode                     | 0~1                        | 1     | 4/4 | 0:disable<br>1:enable                                  |
| dnr_strength                 | 1~100                      | 50    | 4/4 | Strength of DNR  |
| eis                          | 0~1                        | 0     | 4/4 | Electronic image stabilizer<br>0:disable<br>1:enable   |
| profile_i0_enable            | <boolean>                  | 0     | 4/4 | Enable/disable this profile setting                    |
| profile_i0_policy            | day,<br>night,<br>schedule | night | 4/4 | The mode which the profile is applied to.              |
| profile_i0_begintime         | hh:mm                      | 18:00 | 4/4 | Begin time of schedule mode.                           |
| profile_i0_endtime           | hh:mm                      | 06:00 | 4/4 | End time of schedule mode.                             |
| profile_i0_brightness        | -5~5,100                   | 100   | 4/4 | Adjust brightness of image according to mode settings. |
| profile_i0_saturation        | -5~5,100                   | 100   | 4/4 | Adjust saturation of image according to mode settings. |
| profile_i0_contrast          | -5~5,100                   | 100   | 4/4 | Adjust contrast of image according to mode settings.   |
| profile_i0_sharpness         | -3~3,100                   | 100   | 4/4 | Adjust sharpness of image according to mode settings.  |
| profile_i0_brightnesspercent | 0~100                      | 0     | 4/4 | Adjust brightnesspercent of image                      |
| profile_i0_contrastpercent   | 0~100                      | 50    | 4/4 | Adjust contrastpercent of image                        |
| profile_i0_saturationpercent | 0~100                      | 50    | 4/4 | Adjust saturationpercent of image                      |
| profile_i0_sharpnesspercent  | 0~100                      | 50    | 4/4 | Adjust sharpnesspercentvalue of image                  |
| profile_i0_gammacurve        | 0~100                      | 0     | 4/4 | Gamma curve.   |
| profile_i0_lowlightmode      | <boolean>                  | 1     | 4/4 | Enable/disable low light mode.                         |
| profile_i0_dnr_mode          | 0~1                        | 1     | 4/4 | 0:disable  |

|                         |       |    |     |  |
|-------------------------|-------|----|-----|--|
|                         |       |    |     | 1:enable   |
| profile_i0_dnr_strength | 1~100 | 50 | 4/4 | Strength of DNR                                      |
| profile_i0_eis          | 0~1   | 0  | 4/4 | Electronic image stabilizer<br>0:disable<br>1:enable |

## 7.12 Image setting for preview

Group: **imagepreview\_c<0~(n-1)>** for n channel products

| NAME              | VALUE     | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION   |
|-------------------|-----------|---------|-----------------------|---|
| brightness        | -5~5,100  | 100     | 4/4                   | Adjust brightness of image according to mode settings.  |
| saturation        | -5~5,100  | 100     | 4/4                   | Adjust saturation of image according to mode settings.<br>100 for saturation percentage mode. |
| contrast          | -5~5,100  | 100     | 4/4                   | Adjust contrast of image according to mode settings.  |
| sharpness         | -3~3,100  | 100     | 4/4                   | Adjust sharpness of image according to mode settings.   |
| brightnesspercent | 0~100     | 0       | 4/4                   | Adjust brightnesspercent of image   |
| saturationpercent | 0~100     | 50      | 4/4                   | Adjust saturation value of percentage when saturation=100                                     |
| contrastpercent   | 0~100     | 50      | 4/4                   | Adjust contrastpercent of image   |
| sharpnesspercent  | 0~100     | 50      | 4/4                   | Adjust sharpnessvalue of percentage when sharpness=100  |
| gammacurve        | 0~100     | 0       | 4/4                   | Gamma curve.  |
| lowlightmode      | <boolean> | 1       | 4/4                   | Enable/disable low light mode.  |
| dnr_mode          | 0~1       | 1       | 4/4                   | 0:disable<br>1:enable   |
| dnr_strength      | 1~100     | 50      | 4/4                   | Strength of DNR   |
| eis               | 0~1       | 0       | 4/4                   | Electronic image stabilizer<br>0:disable<br>1:enable  |

Group: imagepreview

| NAME                 | VALUE                      | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION  |
|----------------------|----------------------------|---------|-----------------------|--|
| videoin_whitebalance | auto,<br>manual,<br>rbgain | auto    | 4/4                   | Preview of adjusting white balance of image according to mode settings |

|                     |       |    |     |  |
|---------------------|-------|----|-----|--|
| videoin_restoreatwb | 1~    | 1  | 4/4 | Restore of adjusting white balance of image according to mode settings |
| videoin_rgain       | 0~100 | 30 | 4/4 | Manual set rgain value of gain control setting.                        |
| videoin_bgain       | 0~100 | 30 | 4/4 | Manual set bgain value of gain control setting.                        |

## 7.13 Exposure window setting per channel

Group: **exposurewin\_c<0~(n-1)>** for n channel products

| NAME              | VALUE               | DEFAULT  | SECURITY<br>(get/set) | DESCRIPTION  |
|-------------------|---------------------|----------|-----------------------|--|
| mode              | auto,<br>custom,blc | auto     | 4/4                   | The mode indicates how to decide the exposure.<br>auto: Use full view as the only one exposure window.<br>custom: Use inclusive and exclusive window.<br>blc: Use BLC. |
| win_i<0~9>_enable | <boolean>           | 0        | 4/4                   | Enable or disable the window.  |
| win_i<0~9>_policy | 0~1                 | 0        | 4/4                   | 0: Indicate exclusive.<br>1: Indicate inclusive.   |
| win_i<0~9>_home   | <coordinate>        | (110,80) | 4/4                   | Left-top corner coordinate of the window.  |
| win_i<0~9>_size   | <window size>       | (100x75) | 4/4                   | Width and height of the window.  |

Group: **exposurewin\_c<0~(n-1)>\_profile** for m profile and n channel product

| NAME                         | VALUE               | DEFAULT  | SECURITY<br>(get/set) | DESCRIPTION  |
|------------------------------|---------------------|----------|-----------------------|--|
| i<0~(m-1)>_mode              | auto,<br>custom,blc | auto     | 4/4                   | The mode indicates how to decide the exposure.<br>auto: Use full view as the only one exposure window.<br>custom: Use inclusive and exclusive window.<br>blc: Use BLC. |
| i<0~(m-1)>_win_i<0~9>_enable | <boolean>           | 0        | 4/4                   | Enable or disable the window.  |
| i<0~(m-1)>_win_i<0~9>_policy | 0~1                 | 0        | 4/4                   | 0: Indicate exclusive.<br>1: Indicate inclusive.   |
| i<0~(m-1)>_win_i<0~9>_home   | <coordinate>        | (110,80) | 4/4                   | Left-top corner coordinate of the window.  |
| i<0~(m-1)>_win_i<0~9>_size   | <window size>       | (100x75) | 4/4                   | Width and height of the window.  |



## 7.14 Audio input per channel

Group: **audioin\_c<0~(n-1)>** for n channel products (**capability.audioin>0**)

| NAME                                 | VALUE                                     | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION   |
|--------------------------------------|---|---------|-----------------------|---|
| source                               | linein                                    | linein  | 4/4                   | micin => use built-in microphone input.<br>linein => use external microphone input. |
| mute                                 | 0, 1                                      | 1       | 1/4                   | Disable audio mute.   |
| gain                                 | 0~100                                     | 65      | 4/4                   | Gain of input.<br>(audioin_c<0~(n-1)>_source = linein)                              |
| boostmic                             | 0~100                                     | 65      | 4/4                   | Enable microphone boost.<br>Gain of input.<br>(audioin_c<0~(n-1)>_source = micin)   |
| s<0~(m-1)>_codectype                 | aac4, g711, g726                          | g711    | 4/4                   | Set audio codec type for input.   |
| s<0~(m-1)>_aac4_bitrate              | 16000, 32000, 48000, 64000, 96000, 128000 | 16000   | 4/4                   | Set AAC4 bitrate in bps.  |
| s<0~(m-1)>_g711_mode                 | pcmu, pcma                                | pcmu    | 4/4                   | Set G.711 mode.   |
| s<0~(m-1)>_g726_bitrate              | 16000, 24000, 32000, 40000                | 32000   | 4/4                   | Set G.726 bitrate in bps.   |
| s<0~(m-1)>_g726_bitstreampackingmode | little, big                               | little  | 4/4                   | Set G.726 bit streaming packing mode  |
| s<0~(m-1)>_g726_vlcmode              | 0, 1                                      | 0       | 4/4                   | Enable vlcmode for G.726  |
| alarm_enable                         | 0, 1                                      | 0       | 4/4                   | Enable audio detection  |
| alarm_level                          | 1~100                                     | 50      | 4/4                   | Audio detection alarm level   |
| profile_i0_enable                    | <boolean>                                 | 0       | 4/4                   | Enable/disable this profile setting   |
| profile_i0_policy                    | day, night,                               | night   | 4/4                   | The mode which the profile is applied to.   |

|                        | schedule |       |     |                              |
|------------------------|----------|-------|-----|------------------------------|
| profile_i0_begintime   | hh:mm    | 18:00 | 4/4 | Begin time of schedule mode. |
| profile_i0_endtime     | hh:mm    | 06:00 | 4/4 | End time of schedule mode.   |
| profile_i0_alarm_level | 1~100    | 50    | 4/4 | Audio detection alarm level  |

## 7.15 Motion detection settings

Group: **motion\_c<0~(n-1)>** for n channel product

| NAME                   | VALUE      | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION                             |
|------------------------|------------|---------|-----------------------|---|
| enable                 | <boolean>  | 0       | 4/4                   | Enable motion detection.                |
| win_i<0~2>_enable      | <boolean>  | 0       | 4/4                   | Enable motion window 1~3.               |
| win_i<0~2>_name        | string[14] | <blank> | 4/4                   | Name of motion window 1~3.              |
| win_i<0~2>_left        | 0 ~ 320    | 0       | 4/4                   | Left coordinate of window position.     |
| win_i<0~2>_top         | 0 ~ 240    | 0       | 4/4                   | Top coordinate of window position.      |
| win_i<0~2>_width       | 0 ~ 320    | 0       | 4/4                   | Width of motion detection window.       |
| win_i<0~2>_height      | 0 ~ 240    | 0       | 4/4                   | Height of motion detection window.      |
| win_i<0~2>_objsize     | 0 ~ 100    | 0       | 4/4                   | Percent of motion detection window.     |
| win_i<0~2>_sensitivity | 0 ~ 100    | 0       | 4/4                   | Sensitivity of motion detection window. |

Group: **motion\_c<0~(n-1)> profile** for m profile and n channel product (capability.nmotionprofile > 0)

| NAME                         | VALUE                      | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION                               |
|------------------------------|----------------------------|---------|-----------------------|---|
| i<0~(m-1)>_enable            | <boolean>                  | 0       | 4/4                   | Enable profile 1 ~ (m-1).                 |
| i<0~(m-1)>_policy            | day,<br>night,<br>schedule | night   | 4/4                   | The mode which the profile is applied to. |
| i<0~(m-1)>_begintime         | hh:mm                      | 18:00   | 4/4                   | Begin time of schedule mode.              |
| i<0~(m-1)>_endtime           | hh:mm                      | 06:00   | 4/4                   | End time of schedule mode.                |
| i<0~(m-1)>_win_i<0~2>_enable | <boolean>                  | 0       | 4/4                   | Enable motion window.                     |
| i<0~(m-1)>_win_i<0~2>_name   | string[14]                 | <blank> | 4/4                   | Name of motion window.                    |
| i<0~(m-1)>_win_i<0~2>_left   | 0 ~ 320                    | 0       | 4/4                   | Left coordinate of window position.       |
| i<0~(m-1)>_win_i<0~2>_top    | 0 ~ 240                    | 0       | 4/4                   | Top coordinate of window position.        |
| i<0~(m-1)>_win_i<0~2>_width  | 0 ~ 320                    | 0       | 4/4                   | Width of motion detection window.         |

|   |         |   |     |   |
|---|---------|---|-----|---|
| $i<0\sim(m-1)>_{win\_i<0\sim 2>_{height}}$      | 0 ~ 240 | 0 | 4/4 | Height of motion detection window.      |
| $i<0\sim(m-1)>_{win\_i<0\sim 2>_{objsize}}$     | 0 ~ 100 | 0 | 4/4 | Percent of motion detection window.     |
| $i<0\sim(m-1)>_{win\_i<0\sim 2>_{sensitivity}}$ | 0 ~ 100 | 0 | 4/4 | Sensitivity of motion detection window. |

## 7.16 Tempering detection settings

Group: **tampering\_c<0~(n-1)>** for n channel product (**capability.tampering > 0**)

| NAME      | VALUE     | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION  |
|-----------|-----------|---------|-----------------------|--|
| enable    | <boolean> | 0       | 4/4                   | Enable or disable tamper detection.  |
| threshold | 0 ~ 255   | 120     | 1/7                   | Threshold of tamper detection.   |
| duration  | 10 ~ 20   | 2       | 1/7                   | If tampering value exceeds the 'threshold' for more than 'duration' second(s), then tamper detection is triggered. |

## 7.17 DDNS

Group: **ddns** (**capability.ddns > 0**)

| NAME                     | VALUE  | DEFAULT       | SECURITY<br>(get/set) | DESCRIPTION  |
|--------------------------|--|---------------|-----------------------|--|
| enable                   | <boolean>  | 0             | 6/6                   | Enable or disable the dynamic DNS.   |
| provider                 | CustomSafe100,<br>DyndnsDynamic,<br>DyndnsCustom,<br>Safe100 | DyndnsDynamic | 6/6                   | Safe100 => safe100.net<br>DyndnsDynamic => dyndns.org<br>(dynamic)<br>DyndnsCustom => dyndns.org<br>CustomSafe100 =><br>Custom server using safe100 method |
| <provider>_hostname      | string[128]  | <blank>       | 6/6                   | Your DDNS hostname.  |
| <provider>_usernameemail | string[64]   | <blank>       | 6/6                   | Your user name or email to login to the DDNS service provider  |
| <provider>_passwordkey   | string[64]   | <blank>       | 6/6                   | Your password or key to login to the DDNS service provider.  |
| <provider>_servername    | string[128]  | <blank>       | 6/6                   | The server name for safe100.<br>(This field only exists if the provider is customsaf100)   |

## 7.18 Express link

Group: expresslink

| PARAMETER | VALUE  | Default    | SECURITY<br>(get/set) | DESCRIPTION  |
|-----------|--|------------|-----------------------|--|
| enable    | <boolean>  | 0          | 6/6                   | Enable or disable express link.  |
| state     | onlycheck,<br>onlyoffline,<br>checkonline,<br>badnetwork | badnetwork | 6/6                   | Camera will check the status of network environment and express link URL |
| url       | string[64]   | NULL       | 6/6                   | The url user define to link to camera                                    |

## 7.19 UPnP presentation

Group: upnppresentation

| NAME   | VALUE     | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION                                      |
|--------|-----------|---------|-----------------------|--|
| enable | <boolean> | 1       | 6/6                   | Enable or disable the UPnP presentation service. |

## 7.20 UPnP port forwarding

Group: upnpportforwarding

| NAME         | VALUE     | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION  |
|--------------|-----------|---------|-----------------------|--|
| enable       | <boolean> | 0       | 6/6                   | Enable or disable the UPnP port forwarding service.  |
| upnpatstatus | 0~3       | 0       | 6/7                   | The status of UPnP port forwarding, used internally.<br>0 = OK, 1 = FAIL, 2 = no IGD router, 3 = no need for port forwarding |

## 7.21 System log

Group: **syslog**

| NAME            | VALUE        | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION            |
|-----------------|--------------|---------|-----------------------|------------------------|
| enableremotelog | <boolean>    | 0       | 6/6                   | Enable remote log.     |
| serverip        | <IP address> | <blank> | 6/6                   | Log server IP address. |

|               |                    |     |     |  |
|---------------|--------------------|-----|-----|--|
| serverport    | 514,<br>1025~65535 | 514 | 6/6 | Server port used for log.  |
| level         | 0~7                | 6   | 6/6 | Levels used to distinguish the importance of the information:<br>0: LOG_EMERG<br>1: LOG_ALERT<br>2: LOG_CRIT<br>3: LOG_ERR<br>4: LOG_WARNING<br>5: LOG_NOTICE<br>6: LOG_INFO<br>7: LOG_DEBUG |
| setparamlevel | 0~2                | 0   | 6/6 | Show log of parameter setting.<br>0: disable<br>1: Show log of parameter setting set from external.<br>2. Show log of parameter setting set from external and internal.                      |

## 7.22 SNMP

Group: **snmp** (capability.snmp > 0)

| NAME          | VALUE         | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION                                  |
|---------------|---------------|---------|-----------------------|--|
| v2            | 0~1           | 0       | 6/6                   | SNMP v2 enabled. 0 for disable, 1 for enable |
| v3            | 0~1           | 0       | 6/6                   | SNMP v3 enabled. 0 for disable, 1 for enable |
| secnamerw     | string[31]    | Private | 6/6                   | Read/write security name                     |
| secnamero     | string[31]    | Public  | 6/6                   | Read only security name                      |
| authpwrw      | string[8~128] | <blank> | 6/6                   | Read/write authentication password           |
| authpwro      | string[8~128] | <blank> | 6/6                   | Read only authentication password            |
| authtyperw    | MD5,SHA       | MD5     | 6/6                   | Read/write authentication type               |
| authtypero    | MD5,SHA       | MD5     | 6/6                   | Read only authentication type                |
| encryptpwrw   | string[8~128] | <blank> | 6/6                   | Read/write passwrd                           |
| encryptpwro   | string[8~128] | <blank> | 6/6                   | Read only password                           |
| encrypttyperw | DES           | DES     | 6/6                   | Read/write encryption type                   |

|               |             |         |     |                           |
|---------------|-------------|---------|-----|---------------------------|
| encrypttypero | DES         | DES     | 6/6 | Read only encryption type |
| rwcommunity   | string[31]  | Private | 6/6 | Read/write community      |
| rocommunity   | string[31]  | Public  | 6/6 | Read only community       |
| syslocation   | string[128] | <blank> | 6/6 | System location           |
| syscontact    | string[128] | <blank> | 6/6 | System contact            |

## 7.23 Layout configuration

Group: **layout** (New version)

| NAME                            | VALUE      | DEFAULT   | SECURITY<br>(get/set) | DESCRIPTION  |
|---------------------------------|------------|---|-----------------------|--|
| logo_default                    | <boolean>  | 1   | 1/6                   | 0 => Custom logo<br>1 => Default logo  |
| logo_link                       | string[64] | <a href="http://www.vivotek.com">http://www.vivotek.com</a> | 1/6                   | Hyperlink of the logo  |
| logo_powerbyvvtk_hidden         | <boolean>  | 0   | 1/6                   | 0 => display the power by vivotek logo<br>1 => hide the power by vivotek logo      |
| custombutton_manualtrigger_show | <boolean>  | 1   | 1/6                   | Show or hide manual trigger (VI) button in homepage<br>0 -> Hidden<br>1 -> Visible |
| theme_option                    | 1~4        | 1   | 1/6                   | 1~3: One of the default themes.<br>4: Custom definition.                           |
| theme_color_font                | string[7]  | #ffffff   | 1/6                   | Font color   |
| theme_color_configfont          | string[7]  | #ffffff   | 1/6                   | Font color of configuration area.  |
| theme_color_titlefont           | string[7]  | #098bd6   | 1/6                   | Font color of video title.   |
| theme_color_controlbackground   | string[7]  | #565656   | 1/6                   | Background color of control area.  |
| theme_color_configbackground    | string[7]  | #323232   | 1/6                   | Background color of configuration area.  |
| theme_color_videobackground     | string[7]  | #565656   | 1/6                   | Background color of video area.  |
| theme_color_case                | string[7]  | #323232   | 1/6                   | Frame color  |

## 7.24 Privacy mask

Group: **privacymask\_c<0~(n-1)>** for n channel product

| NAME              | VALUE      | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION                         |
|-------------------|------------|---------|-----------------------|-------------------------------------|
| enable            | <boolean>  | 0       | 4/4                   | Enable privacy mask.                |
| win_i<0~4>_enable | <boolean>  | 0       | 4/4                   | Enable privacy mask window.         |
| win_i<0~4>_name   | string[14] | <blank> | 4/4                   | Name of the privacy mask window.    |
| win_i<0~4>_left   | 0 ~ 320    | 0       | 4/4                   | Left coordinate of window position. |
| win_i<0~4>_top    | 0 ~ 240    | 0       | 4/4                   | Top coordinate of window position.  |
| win_i<0~4>_width  | 0 ~ 320    | 0       | 4/4                   | Width of privacy mask window.       |
| win_i<0~4>_height | 0 ~ 240    | 0       | 4/4                   | Height of privacy mask window.      |

## 7.25 Capability

Group: capability

| NAME            | VALUE                    | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION  |
|-----------------|--------------------------|---------|-----------------------|--|
| api_httpversion | <string>                 | 0300a   | 0/7                   | The HTTP API version.  |
| bootuptime      | <positive integer>       | 60      | 0/7                   | Server bootup time.  |
| nir             | 0,<br><positive integer> | 1       | 0/7                   | Number of IR interfaces.   |
| npir            | 0,<br><positive integer> | 0       | 0/7                   | Number of PIRs.  |
| ndi             | 0,<br><positive integer> | 1       | 0/7                   | Number of digital inputs.  |
| nvi             | 0,<br><positive integer> | 3       | 0/7                   | Number of virtual inputs<br>(manual trigger)   |
| ndo             | 0,<br><positive integer> | 1       | 0/7                   | Number of digital outputs.   |
| naudioin        | 0,<br><positive integer> | 1       | 0/7                   | Number of audio inputs.  |
| naudioout       | 0,<br><positive integer> | 1       | 0/7                   | Number of audio outputs.   |
| nvideoin        | <positive integer>       | 1       | 0/7                   | Number of video inputs.  |
| nvideoinprofile | <positive integer>       | 1       | 0/7                   | Number of videoinput profiles.   |
| nmediastream    | <positive integer>       | 2       | 0/7                   | Number of media stream per<br>channels.  |
| naudiosetting   | <positive integer>       | 1       | 0/7                   | Number of audio settings per<br>channel.   |
| nuart           | 0,<br><positive integer> | 0       | 0/7                   | Number of UART interfaces.   |
| nmotion         | <positive integer>       | 3       | 0/7                   | Number of motions  |
| nmotionprofile  | 0, <positive integer>    | 1       | 0/7                   | Number of motion profiles.   |
| ptzenabled      | 0, <positive integer>    | 0       | 0/7                   | An 32-bit integer, each bit can<br>be set separately as follows:<br>Bit 0 => Support camera control<br>function;<br>0(not support), 1(support)<br>Bit 1 => Built-in or external<br>camera; |



|                        |                    |    |     |   |
|------------------------|--------------------|----|-----|---|
|                        |                    |    |     | <p>0(external), 1(built-in)</p> <p>Bit 2 =&gt; Support pan operation,<br/>0(not support), 1(support)</p> <p>Bit 3 =&gt; Support tilt operation;<br/>0(not support), 1(support)</p> <p>Bit 4 =&gt; Support zoom<br/>operation;<br/>0(not support), 1(support)</p> <p>Bit 5 =&gt; Support focus<br/>operation;<br/>0(not support), 1(support)</p> <p>Bit 6 =&gt; Support iris operation;<br/>0(not support), 1(support)</p> <p>Bit 7 =&gt; External or built-in PT;<br/>0(built-in), 1(external)</p> <p>Bit 8 =&gt; Invalidate bit 1 ~ 7;<br/>0(bit 1 ~ 7 are valid),<br/>1(bit 1 ~ 7 are invalid)</p> <p>Bit 9 =&gt; Reserved bit;<br/>Invalidate lens_pan, Lens_tilt,<br/>lens_zoon, lens_focus, len_iris.<br/>0(fields are valid),<br/>1(fields are invalid)</p> |
| evctrlchannel          | <boolean>          | 1  | 0/7 | Indicate whether to support HTTP tunnel for event/control transfer.   |
| joystick               | <boolean>          | 1  | 0/7 | Indicate whether to support joystick control.   |
| remotefocus            | <boolean>          | 1  | 0/7 | Indicate whether to support remotefocus function.   |
| storage_dbenabled      | <boolean>          | 1  | 0/7 | Media files are indexed in database.  |
| protocol_https         | < boolean >        | 1  | 0/7 | Indicate whether to support HTTP over SSL.  |
| protocol_rtsp          | < boolean >        | 1  | 0/7 | Indicate whether to support RTSP.   |
| protocol_sip           | <boolean>          | 1  | 0/7 | Indicate whether to support SIP.  |
| protocol_maxconnection | <positive integer> | 10 | 0/7 | The maximum allowed simultaneous connections.   |

|                                    |                    |                |     |  |
|------------------------------------|--------------------|----------------|-----|--|
| protocol_maxgenconnection          | <positive integer> | 10             | 0/7 | The maximum general streaming connections .              |
| protocol_maxmegacconnection        | <positive integer> | 0              | 0/7 | The maximum megapixel streaming connections.             |
| protocol_rtp_multicast_scalable    | <boolean>          | 1              | 0/7 | Indicate whether to support scalable multicast.          |
| protocol_rtp_multicast_backchannel | <boolean>          | 1              | 0/7 | Indicate whether to support backchannel multicast.       |
| protocol_rtp_tcp                   | <boolean>          | 1              | 0/7 | Indicate whether to support RTP over TCP.                |
| protocol_rtp_http                  | <boolean>          | 1              | 0/7 | Indicate whether to support RTP over HTTP.               |
| protocol_spush_mjpeg               | <boolean>          | 1              | 0/7 | Indicate whether to support server push MJPEG.           |
| protocol_snmp                      | <boolean>          | 1              | 0/7 | Indicate whether to support SNMP.                        |
| protocol_ipv6                      | <boolean>          | 1              | 0/7 | Indicate whether to support IPv6.                        |
| protocol_pppoe                     | <boolean>          | 1              | 0/7 | Indicate whether to support PPPoE.                       |
| protocol_ieee8021x                 | <boolean>          | 1              | 0/7 | Indicate whether to support IEEE802.1x.                  |
| protocol_qos_cos                   | <boolean>          | 1              | 0/7 | Indicate whether to support CoS.                         |
| protocol_qos_dscp                  | <boolean>          | 1              | 0/7 | Indicate whether to support QoS/DSCP.                    |
| protocol_ddns                      | <boolean>          | 1              | 0/7 | Indicate whether to support DDNS.                        |
| videoin_type                       | 0, 1, 2            | 2              | 0/7 | 0 => Interlaced CCD<br>1 => Progressive CCD<br>2 => CMOS |
| videoin_codec                      | mjpeg, h264        | mjpeg,<br>h264 | 0/7 | Available codec list.                                    |
| Videoin_c0_nmode                   | <Integer>          | 1              | 0/7 | Indicate how many video modes supported by this channel. |
| videoin_c0_nresolution             | <positive integer> | IP8365:<br>7   | 0/7 | Number of videoin resolution.                            |

|                              |   |  |     |   |
|------------------------------|---|--|-----|---|
|                              |   | IP8355:<br>8   |     |   |
| videoin_c0_resolution        | <a list of available resolution separated by commas><br><product dependent> | IP8365:<br>176x144,<br>384x216,<br>640x360,1280x720,<br>1360x768,1600x904,<br>1920x1080<br>IP8355:<br>176x144,320x240,<br>640x480,720x480,<br>800x600,960x768,<br>1280x720,1280x1024 | 0/7 | Available resolutions list.   |
| videoin_c0_maxframe rate     | A list of <Integer>   | IP8365:<br>30,30,30,30,<br>30,30,30<br>IP8355:<br>30,30,30,30,<br>30,30,30,30  | 0/7 | Indicate how many frame rate image sensor outputs in current video mode.<br><br>*One to one mapping to the resolution in "resolution".<br>* The element number is defined as "nresolution" in this group.<br>* This parameter may be changed when<br>"videoin_c<n>_cmosfreq"=50<br>or<br>"videoin_c<n>_modulation"=p<br>al.<br>Ex: 30 fps is changed to 25 fps, 60 fps is changed to 50 fps, and so on. |
| videoin_c0_mjpg_maxframerate | A list of <Integer>   | IP8365:<br>30,30,30,30,<br>30,30,30  | 0/7 | Maximum fps that the device can encoded one stream with MJPEG on resolutions in current   |

|                              |                     |   |     |   |
|------------------------------|---------------------|---|-----|---|
|                              |                     | IP8355:<br>30,30,30,30,<br>30,30,30,30  |     | <p>video mode.</p> <p>"-" means not support.</p> <ul style="list-style-type: none"> <li>* One to one mapping to the resolution in "resolution".</li> <li>* The element number is defined as "nresolution" in this group.</li> <li>* This parameter may be changed when "videoin_c&lt;n&gt;_cmosfreq"=50 or "videoin_c&lt;n&gt;_modulation"=pal.</li> </ul> <p>Ex: 30 fps is changed to 25 fps, 60 fps is changed to 50 fps, and so on.</p> <ul style="list-style-type: none"> <li>* Only available when 'mjpeg' is listed in "capability_videoin_codec".</li> </ul> |
| videoin_c0_mjpg_maxbitrate   | <Positive Integer>  | 40000000  | 0/7 | <p>Maximum bitrates of MJPEG. The unit is bps.</p> <p>"-" means MJPEG does not support bit rate control.</p> <ul style="list-style-type: none"> <li>* Only available when 'mjpeg' is listed in "capability_videoin_codec".</li> </ul>   |
| videoin_c0_h264_maxframerate | A list of <Integer> | IP8365:<br>30,30,30,30,<br>30,30,30<br>IP8355:<br>30,30,30,30,<br>30,30,30,30 | 0/7 | <p>Maximum fps that the device can encoded one stream with H.264 on resolutions in current video mode.</p> <p>"-" means not support.</p> <ul style="list-style-type: none"> <li>* One to one mapping to the resolution in "resolution".</li> <li>* The element number is defined as "nresolution" in this group.</li> <li>* This parameter may be</li> </ul>  |

|                            |                    |  |     |  |
|----------------------------|--------------------|--|-----|--|
|                            |                    |  |     | <p>changed when</p> <p>"videoin_c&lt;n&gt;_cmofreq"=50<br/>or<br/>"videoin_c&lt;n&gt;_modulation"=p<br/>al.</p> <p>Ex: 30 fps is changed to 25 fps,<br/>60 fps is changed to 50 fps, and<br/>so on.</p> <p>* Only available when 'h264' is<br/>listed in<br/>"capability_videoin_codec".</p> |
| videoin_c0_h264_maxbitrate | <Positive Integer> | 40000000                                     | 0/7 | <p>Maximum bitrates of H.264.<br/>The unit is bps.</p> <p>* Only available when 'h264' is<br/>listed in<br/>"capability_videoin_codec".</p>  |
| videoin_c0_streamcodec     | <Positive Integer> | 6,6  | 0/7 | <p>Represent supported codec<br/>types of each stream.</p> <p>This contains a list of positive<br/>integers, split by comma. Each<br/>one stands for a stream, and the<br/>definition is as following:</p> <p>Bit 0: Support MPEG4.<br/>Bit 1: Support MJPEG<br/>Bit 2: Support H.264</p>    |
| videoin_c0_mode            | <Integer>          | 0  | 0/7 | Indicate current video mode.   |
| videoin_c0_nmode           | <Positive Integer> | 1  | 0/7 | Indicate how many video modes<br>supported by this channel.  |
| videoin_c0_maxsize         | <WxH>              | IP8365:<br>1920x1080<br>IP8355:<br>1280x1024 | 0/7 | The maximum resolution of this<br>channel, the unit is pixel.  |
| videoin_c0_nmode           | <Positive Integer> | 1  | 0/7 | Indicate how many video modes<br>supported by this channel.  |
| Videoin_c0_maxsize         | <WxH>              | IP8365:<br>1920x1080<br>IP8355:              | 0/7 | The maximum resolution of this<br>channel, the unit is pixel.  |

|                                 |   |  |     |  |
|---------------------------------|---|--|-----|--|
|                                 |   | 1280x1024                                    |     |  |
| videoin_c0_mode0_effectivepixel | <WxH>                                     | IP8365:<br>1920x1080<br>IP8355:<br>1280x1024 | 0/7 | <p>The visible area of full scene in this video mode.</p> <p>The unit is pixel in source.</p> <p>* This value must &lt;= "capability_videoin_c&lt;n&gt;_max size"</p> <p>* If "effectivepixel" &lt; "capability_videoin_c&lt;n&gt;_max size", then the visible area is located at the center of full scene.</p>  |
| videoin_c0_mode0_outputsize     | <WxH>                                     | IP8365:<br>1920x1080<br>IP8355:<br>1280x1024 | 0/7 | <p>The output size of source, equal to the captured size by device, in this video mode. The unit is pixel.</p> <p>This value is used as a basic coordinate system for many features, like ePTZ, privacy mask, motion, etc.</p> <p>* Source (most for image sensor) may perform scale or binning, etc on image data, and output data with smaller size. This parameter is designed to represent this.</p> |
| videoin_c0_mode0_binning        | binning                                   | 0  | 0/7 | <p>Indicate binning is used or not in this video mode.</p> <p>0: No binning<br/>1: 2x2 binning<br/>3: 3x3 binning</p>  |
| videoin_c0_mode0_nresolution    | <positive integer>                        | IP8365:<br>7<br>IP8355:<br>8                 | 0/7 | Available resolutions list.  |
| videoin_c0_mode0_resolution     | <a list of available resolution separated | IP8365:<br>176x144,                          | 0/7 | Available resolutions list.  |

|                                   |                                   |   |     |   |
|-----------------------------------|-----------------------------------|---|-----|---|
|                                   | by commas><br><product dependent> | 384x216,<br>640x360,128<br>0x720,<br>1360x768,16<br>00x904,<br>1920x1080<br>IP8355:<br>176x144,320<br>x240,<br>640x480,720<br>x480,<br>800x600,960<br>x768,<br>1280x720,12<br>80x1024 |     |   |
| videoin_c0_mode0_<br>maxframerate | A list of <Positive<br>Integer>   | IP8365:<br>30,30,30,30,<br>30,30,30<br>IP8355:<br>30,30,30,30,<br>30,30,30,30   | 0/7 | Indicate how many frame rate<br>image sensor outputs in this<br>video mode.<br><br>* One to one mapping to the<br>resolution in "resolution".<br>* The element number is<br>defined as "nresolution" in this<br>group.<br>* This parameter records the<br>frame rate when<br>"videoin_c<n>_cmosfreq"=60<br>or<br>"videoin_c<n>_modulation"=nt<br>sc |
| videoin_c0_mode0_<br>maxfps_mjpeg | <Integer>                         | IP8365:<br>30,30,30,30,<br>30,30,30<br>IP8355:<br>30,30,30,30,<br>30,30,30<br>30  | 0/7 | Maximum fps that the device<br>can encode   |
| videoin_c0_mode0_<br>maxfps_h264  | <Integer>                         | IP8365:<br>30,30,30,30,<br>30,30,30   | 0/7 | Maximum fps that the device<br>can encode   |

|                                  |                  |   |     |   |
|----------------------------------|------------------|---|-----|---|
|                                  |                  | IP8355:<br>30,30,30,30,<br>30,30,30<br>30   |     |   |
| videoin_c0_mode0_<br>description | <String[128]>    | IP8365:<br>1080P Full<br>HD (16:9)<br>(MAX 30fps)<br>IP8355:<br>1.3M (5:4)<br>(MAX 30fps) | 0/7 | Description about this mode   |
| videoin_flexiblebitrat<br>e      | <boolean>        | 1   | 0/7 | Indicate whether to support flexible bit rate control.  |
| audio_aec                        | <boolean>        | 0   | 0/7 | Indicate whether to support acoustic echo cancellation.   |
| audio_mic                        | <boolean>        | 0   | 0/7 | Indicate whether to support built-in microphone input.  |
| audio_extmic                     | <boolean>        | 1   | 0/7 | Indicate whether to support external microphone input.  |
| audio_linein                     | <boolean>        | 1   | 0/7 | Indicate whether to support external line input.<br>(It will be replaced by audio_mic and audio_extmic.)  |
| audio_lineout                    | <boolean>        | 1   | 0/7 | Indicate whether to support line output.  |
| audio_headphoneout               | <boolean>        | 0   | 0/7 | Indicate whether to support headphone output.   |
| audioin_codec                    | aac4, g711, g726 | aac4, g711,<br>g726   | 0/7 | Available codec list for audio input.   |
| audioout_codec                   | N/A              | N/A   | 0/7 | Available codec list for SIP.   |
| camctrl_httpstunnel              | <boolean>        | 0   | 0/7 | Indicate whether to support httpstunnel.  |
| camctrl_privilege                | <boolean>        | 1   | 0/7 | Indicate whether to support "Manage Privilege" of PTZ control in the Security page.<br>1: support both<br>/cgi-bin/camctrl/camctrl.cgi and<br>/cgi-bin/viewer/camctrl.cgi |



|                       |                       |     |     |   |
|-----------------------|-----------------------|-----|-----|---|
|                       |                       |     |     | 0: support only<br>/cgi-bin/viewer/camctrl.cgi  |
| uart_httptunnel       | <boolean>             | 0   | 0/7 | Indicate whether to support HTTP tunnel for UART transfer.  |
| transmission_mode     | Tx,<br>Rx,<br>Both    | Tx  | 0/7 | Indicate transmission mode of the machine: TX = server, Rx = receiver box, Both = DVR.  |
| network_wire          | <boolean>             | 1   | 0/7 | Indicate whether to support Ethernet.   |
| network_wireless      | <boolean>             | 0   | 0/7 | Indicate whether to support wireless.   |
| wireless_s802dot11b   | <boolean>             | 0   | 0/7 | Indicate whether to support wireless 802.11b+.  |
| wireless_s802dot11g   | <boolean>             | 0   | 0/7 | Indicate whether to support wireless 802.11g.   |
| wireless_s802dot11n   | <boolean>             | 0   | 0/7 | Indicate whether to support wireless 802.11n.   |
| wireless_beginchannel | 1 ~ 14                | N/A | 0/7 | Indicate the begin channel of wireless network  |
| wireless_endchannel   | 1 ~ 14                | N/A | 0/7 | Indicate the end channel of wireless network  |
| wireless_encrypt_wep  | <boolean>             | 0   | 0/7 | Indicate whether to support wireless WEP.   |
| wireless_encrypt_wpa  | <boolean>             | 0   | 0/7 | Indicate whether to support wireless WPA.   |
| wireless_encrypt_wpa2 | <boolean>             | 0   | 0/7 | Indicate whether to support wireless WPA2.  |
| derivative_brand      | <boolean>             | 1   | 0/7 | Indicate whether to support the upgrade function for the derivative brand. For example, if the value is true, the VVTK product can be upgraded to VVXX. (TCVV<->TCXX is excepted) |
| npreset               | 0, <positive integer> | 20  | 0/7 | Number of preset locations  |
| eptz                  | 0, <positive integer> | 3   | 0/7 | A 32-bit integer, each bit can be set separately as follows:<br>Bit 0 => stream 1 supports ePTZ or not.   |

|                              |                       |          |     |   |
|------------------------------|-----------------------|----------|-----|---|
|                              |                       |          |     | Bit 1 => stream 2 supports ePTZ or not.<br>The rest may be deduced by analogy |
| nanystream                   | 0, <positive integer> | 0        | 0/7 | number of any media stream per channel  |
| iva                          | <boolean>             | 0        | 0/7 | Indicate whether to support Intelligent Video analysis                        |
| tampering                    | <boolean>             | 1        | 0/7 | Indicate whether to support tampering detection.                              |
| version_onvifdaemon          | <string>              | 1.7.1.6  | 0/7 | Indicate ONVIF daemon version   |
| media_totalspace             | <positive integer>    | 20000    | 0/7 | Available memory space (KB) for media.  |
| media_snapshot_sizepersecond | <positive integer>    | 800      | 0/7 | Maximum size (KB) of one snapshot image.                                      |
| media_snapshot_maxpreevent   | <positive integer>    | 7        | 0/7 | Maximum snapshot number before event occurred.                                |
| media_snapshot_maxpostevent  | <positive integer>    | 7        | 0/7 | Maximum snapshot number after event occurred.                                 |
| media_videoclip_maxsize      | <positive integer>    | 3072     | 0/7 | Maximum size (KB) of a videoclip.   |
| media_videoclip_maxlength    | <positive integer>    | 20       | 0/7 | Maximum length (second) of a videoclip.                                       |
| media_videoclip_maxpreevent  | <positive integer>    | 9        | 0/7 | Maximum duration (second) after event occurred in a videoclip.                |
| image_wdrc                   | <Boolean>             | 0        | 0/7 | Indicate whether to support WDR enhanced.                                     |
| image_iris_type              | <string>              | piris    | 0/7 | Indicate iris type.   |
| image_focusassist            | <Boolean>             | 0        | 0/7 | Indicate whether to support focus assist.                                     |
| localstorage_manageable      | <boolean>             | 1        | 0/7 | Indicate whether manageable local storage is supported.                       |
| localstorage_seamless        | <boolean>             | 1        | 0/7 | Indicate whether seamless recording is supported.                             |
| localstorage_modnum          | 0, <positive integer> | 4        | 0/7 | The maximum MOD connection numbers.   |
| localstorage_modver          | <string>              | 1.0.1.15 | 0/7 | Indicate MOD daemon version   |

|                           |                          |   |     |   |
|---------------------------|--------------------------|---|-----|---|
| sion                      |                          |   |     |   |
| localstorage_slconnu<br>m | 0,<br><positive integer> | 1 | 0/7 | The maximum seamless connection number.   |
| adaptiverecording         | <boolean>                | 1 | 0/7 | Indicate whether to support adaptive recording.   |
| adaptivestreaming         | <boolean>                | 1 | 0/7 | Indicate whether to support adaptive streaming.   |
| vadp                      | <positive integer>       | 0 | 0/7 | An 32-bit integer, each bit can be set separately as follows:<br>Bit 0 => VADP interface<br>Bit 1 => Capture video raw data<br>Bit 2 => Support encode jpeg<br>Bit 3 => Audio<br>Bit 4 => Event |

## 7.26 Customized event script

Group: event\_customtaskfile\_i<0~2>

| PARAMETER | VALUE        | Default | SECURITY<br>(get/set) | DESCRIPTION                                 |
|-----------|--------------|---------|-----------------------|---|
| name      | string[40]   | <blank> | 6/6                   | Custom script identification of this entry. |
| date      | string[4~20] | <blank> | 6/6                   | Date of custom script.                      |
| time      | string[4~20] | <blank> | 6/6                   | Time of custom script.                      |

## 7.27 Event setting

Group: **event\_i**<0~2>

| PARAMETER | VALUE      | Default | SECURITY<br>(get/set) | DESCRIPTION   |
|-----------|------------|---------|-----------------------|---|
| name      | string[40] | <blank> | 6/6                   | Identification of this entry.   |
| enable    | 0, 1       | 0       | 6/6                   | Enable or disable this event.   |
| priority  | 0, 1, 2    | 1       | 6/6                   | Indicate the priority of this event:<br>"0"= low priority<br>"1"= normal priority<br>"2"= high priority |
| delay     | 1~999      | 10      | 6/6                   | Delay in seconds before detecting the next event.   |

|                   |  |         |     |  |
|-------------------|--|---------|-----|--|
| trigger           | boot,<br>di,<br>motion,<br>seq,<br>recnotify,<br>tampering,<br>vi,<br>volalarm | boot    | 6/6 | Indicate the trigger condition:<br>"boot" = System boot<br>"di" = Digital input<br>"motion" = Video motion detection<br>"seq" = Periodic condition<br>"visignal" = Video input signal loss.<br>"recnotify" = Recording notification.<br>"tampering" = Tamper detection.<br>"vi" = Virtual input (Manual trigger)<br>"volalarm" = Audio detection |
| triggerstatus     | String[40]   | trigger | 6/6 | The status for event trigger   |
| exttriggerstatus  | trigger,<br>normal~trigger<br>,<br>trigger~normal                              | <blank> | 6/6 | The status for event DI 1 trigger  |
| exttriggerstatus1 | trigger,<br>normal~trigger<br>,<br>trigger~normal                              | <blank> | 6/6 | The status for event audio detection profiletrigger  |
| di                | <integer>  | 1       | 6/6 | Indicate the source id of di trigger.<br>This field is required when trigger condition is "di".<br>One bit represents one digital input. The LSB indicates DI 0.   |
| mdwin             | <integer>  | 0       | 6/6 | Indicate the source window id of motion detection.<br>This field is required when trigger condition is "md".<br>One bit represents one window.<br>The LSB indicates the 1 <sup>st</sup> window.<br>For example, to detect the 1 <sup>st</sup> and 3 <sup>rd</sup> windows, set mdwin as 5.   |
| mdwin0            | <integer>  | 0       | 6/6 | Similar to mdwin. The parameter takes effect when profile 1 of motion detection is enabled.  |

|  |           |       |     |  |
|--|-----------|-------|-----|--|
| vi                                       | <integer> | 0     | 6/6 | Indicate the source id of vi trigger.<br>This field is required when trigger condition is "vi".<br>One bit represents one digital input. The LSB indicates VI 0.   |
| valevel                                  | 0,1       | 0     | 6/6 | Select audio detection event.<br>0: not select<br>1: select  |
| Valevel0                                 | 0,1       | 0     | 6/6 | Select audio detection profile event.<br>0: not select<br>1: select  |
| inter                                    | 1~999     | 1     | 6/6 | Interval of snapshots in minutes.<br>This field is used when trigger condition is "seq".   |
| weekday                                  | 0~127     | 127   | 6/6 | Indicate which weekday is scheduled.<br>One bit represents one weekday.<br>bit0 (LSB) = Saturday<br>bit1 = Friday<br>bit2 = Thursday<br>bit3 = Wednesday<br>bit4 = Tuesday<br>bit5 = Monday<br>bit6 = Sunday<br>For example, to detect events on Friday and Sunday, set weekday as 66. |
| begintime                                | hh:mm     | 00:00 | 6/6 | Begin time of the weekly schedule.   |
| endtime                                  | hh:mm     | 24:00 | 6/6 | End time of the weekly schedule.<br>(00:00 ~ 24:00 sets schedule as always on)   |
| lowlightcondition<br><product dependent> | 0, 1      | 1     | 6/6 | Switch on white light LED in low light condition<br>0 => Do action at all times<br>1 => Do action in low-light conditions  |
| action_do_i<0~(ndo-1)><br>>_enable       | 0, 1      | 0     | 6/6 | Enable or disable trigger digital output.  |
| action_do_i<0~(ndo-1)><br>>_duration     | 1~999     | 1     | 6/6 | Duration of the digital output trigger in seconds.   |
| action_cf_enable                         | <Boolean> | 0     | 6/6 | Enable or disable sending media to SD card.  |

|                                 |               |         |     |  |
|---------------------------------|---------------|---------|-----|--|
| action_cf_folder                | string[128]   | <blank> | 6/6 | Path to store media.   |
| action_cf_media                 | NULL, 0~4,101 | <blank> | 6/6 | Index of the attached media.   |
| action_cf_datefolder            | <boolean>     | 1       | 6/6 | Enable this to create folders by date, time, and hour automatically.                             |
| action_cf_backup                | <Boolean>     | 0       | 6/6 | Enable or disable the function that send media to SD card for backup if network is disconnected. |
| action_server_i<0~4>_enable     | 0, 1          | 0       | 6/6 | Enable or disable this server action.  |
| action_server_i<0~4>_media      | NULL, 0~4,101 | <blank> | 6/6 | Index of the attached media.<br>101 means "Recording Notify"                                     |
| action_server_i<0~4>_datefolder | <boolean>     | 0       | 6/6 | Enable this to create folders by date, time, and hour automatically.                             |

## 7.28 Server setting for event action

Group: **server\_i<0~4>**

| PARAMETER     | VALUE                         | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION   |
|---------------|-------------------------------|---------|-----------------------|---|
| name          | string[40]                    | NULL    | 6/6                   | Identification of this entry  |
| type          | email,<br>ftp,<br>http,<br>ns | email   | 6/6                   | Indicate the server type:<br>"email" = email server<br>"ftp" = FTP server<br>"http" = HTTP server<br>"ns" = network storage |
| http_url      | string[128]                   | http:// | 6/6                   | URL of the HTTP server to upload.   |
| http_username | string[64]                    | NULL    | 6/6                   | Username to log in to the server.   |
| http_passwd   | string[64]                    | NULL    | 6/6                   | Password of the user.   |
| ftp_address   | string[128]                   | NULL    | 6/6                   | FTP server address.   |
| ftp_username  | string[64]                    | NULL    | 6/6                   | Username to log in to the server.   |
| ftp_passwd    | string[64]                    | NULL    | 6/6                   | Password of the user.   |
| ftp_port      | 0~65535                       | 21      | 6/6                   | Port to connect to the server.  |
| ftp_location  | string[128]                   | NULL    | 6/6                   | Location to upload or store the media.  |
| ftp_passive   | 0, 1                          | 1       | 6/6                   | Enable or disable passive mode.<br>0 = disable passive mode<br>1 = enable passive mode                                      |
| email_address | string[128]                   | NULL    | 6/6                   | Email server address.   |

|                      |             |      |     |  |
|----------------------|-------------|------|-----|--|
| email_sslmode        | 0, 1        | 0    | 6/6 | Enable support SSL.                    |
| email_port           | 0~65535     | 25   | 6/6 | Port to connect to the server.         |
| email_username       | string[64]  | NULL | 6/6 | Username to log in to the server.      |
| email_passwd         | string[64]  | NULL | 6/6 | Password of the user.                  |
| email_senderemail    | string[128] | NULL | 6/6 | Email address of the sender.           |
| email_recipientemail | string[640] | NULL | 6/6 | Email address of the recipient.        |
| ns_location          | string[128] | NULL | 6/6 | Location to upload or store the media. |
| ns_username          | string[64]  | NULL | 6/6 | Username to log in to the server.      |
| ns_passwd            | string[64]  | NULL | 6/6 | Password of the user.                  |
| ns_workgroup         | string[64]  | NULL | 6/6 | Workgroup for network storage.         |

## 7.29 Media setting for event action

Group: **media\_i<0~4>** (media\_freespace is used internally.)

| PARAMETER           | VALUE  | DEFAULT      | SECURITY<br>(get/set) | DESCRIPTION  |
|---------------------|--|--------------|-----------------------|--|
| name                | string[40]   | NULL         | 6/6                   | Identification of this entry   |
| type                | snapshot,<br>systemlog,<br>videoclip,<br>recordmsg | snapshot     | 6/6                   | Media type to send to the server or store on the server.   |
| snapshot_source     | <integer>  | 0            | 6/6                   | Indicate the source of media stream.<br>0 means the first stream.<br>1 means the second stream and etc.<br>2 means the third stream and etc.<br>3 means the fourth stream and etc. |
| snapshot_prefix     | string[16]   | Snapshot[n]_ | 6/6                   | Indicate the prefix of the filename.<br>media_i0=> Snapshot1_<br>media_i1=> Snapshot2_<br>media_i2=> Snapshot3_<br>media_i3=> Snapshot4_<br>media_i4=> Snapshot5_                  |
| snapshot_datesuffix | 0, 1   | 0            | 6/6                   | Add date and time suffix to filename:<br>1 = Add date and time suffix.<br>0 = Do not add.  |
| snapshot_preevent   | 0 ~ 7  | 1            | 6/6                   | Indicates the number of pre-event images.  |

|                       |            |               |     |  |
|-----------------------|------------|---------------|-----|--|
| snapshot_postevent    | 0 ~ 7      | 1             | 6/6 | The number of post-event images.   |
| videoclip_source      | <integer>  | 0             | 6/6 | Indicate the source of media stream.<br>0 means the first stream.<br>1 means the second stream and etc.<br>2 means the third stream and etc.<br>3 means the fourth stream and etc. |
| videoclip_prefix      | string[16] | VideoClip[n]_ | 6/6 | Indicate the prefix of the filename.   |
| videoclip_preevent    | 0 ~ 9      | 0             | 6/6 | Indicates the time for pre-event recording in seconds.   |
| videoclip_maxduration | 1 ~ 20     | 5             | 6/6 | Maximum duration of one video clip in seconds.   |
| videoclip_maxsize     | 50 ~ 3072  | 500           | 6/6 | Maximum size of one video clip file in Kbytes.   |

## 7.30 Recording

Group: **recording\_i**<0~1>

| PARAMETER | VALUE                    | DEFAULT  | SECURITY<br>(get/set) | DESCRIPTION   |
|-----------|--------------------------|----------|-----------------------|---|
| name      | string[40]               | NULL     | 6/6                   | Identification of this entry.   |
| trigger   | schedule,<br>networkfail | schedule | 6/6                   | The event trigger type<br>schedule: The event is triggered by schedule<br>networkfail: The event is triggered by the failure of network connection. |
| enable    | 0, 1                     | 0        | 6/6                   | Enable or disable this recording.   |
| priority  | 0, 1, 2                  | 1        | 6/6                   | Indicate the priority of this recording:<br>"0" indicates low priority.<br>"1" indicates normal priority.<br>"2" indicates high priority.           |
| source    | 0~2                      | 0        | 6/6                   | Indicate the source of media stream.<br>0 means the first stream.<br>1 means the second stream and so on.   |
| limitsize | 0,1                      | 0        | 6/6                   | 0: Entire free space mechanism<br>1: Limit recording size mechanism   |
| cyclic    | 0,1                      | 0        | 6/6                   | 0: Disable cyclic recording<br>1: Enable cyclic recording   |
| notify    | 0,1                      | 1        | 6/6                   | 0: Disable recording notification<br>1: Enable recording notification   |



|               |            |         |     |   |
|---------------|------------|---------|-----|---|
| notifyserver  | 0~31       | 0       | 6/6 | <p>Indicate which notification server is scheduled.</p> <p>One bit represents one application server (server_i0~i4).</p> <p>bit0 (LSB) = server_i0.</p> <p>bit1 = server_i1.</p> <p>bit2 = server_i2.</p> <p>bit3 = server_i3.</p> <p>bit4 = server_i4.</p> <p>For example, enable server_i0, server_i2, and server_i4 as notification servers; the notifyserver value is 21.</p> |
| weekday       | 0~127      | 127     | 6/6 | <p>Indicate which weekday is scheduled.</p> <p>One bit represents one weekday.</p> <p>bit0 (LSB) = Saturday</p> <p>bit1 = Friday</p> <p>bit2 = Thursday</p> <p>bit3 = Wednesday</p> <p>bit4 = Tuesday</p> <p>bit5 = Monday</p> <p>bit6 = Sunday</p> <p>For example, to detect events on Friday and Sunday, set weekday as 66.</p>   |
| begintime     | hh:mm      | 00:00   | 6/6 | Start time of the weekly schedule.  |
| endtime       | hh:mm      | 24:00   | 6/6 | End time of the weekly schedule.<br>(00:00~24:00 indicates schedule always on)  |
| prefix        | string[16] | <blank> | 6/6 | Indicate the prefix of the filename.  |
| cyclesize     | 200~       | 100     | 6/6 | The maximum size for cycle recording in Kbytes when choosing to limit recording size.   |
| reserveamount | 0~         | 100     | 6/6 | The reserved amount in Mbytes when choosing cyclic recording mechanism.   |
| dest          | cf,<br>0~4 | cf      | 6/6 | <p>The destination to store the recorded data.</p> <p>"cf" means local storage (CF or SD card).</p> <p>"0" means the index of the network storage.</p>  |

|                    |             |      |     |  |
|--------------------|-------------|------|-----|--|
| cffolder           | string[128] | NULL | 6/6 | Folder name.   |
| maxsize            | 100~2000    | 100  | 6/6 | Unit: Mega bytes.<br>When this condition is reached, recording file is truncated.        |
| maxduration        | 60~3600     | 60   | 6/6 | Unit: Second<br>When this condition is reached, recording file is truncated.             |
| adaptive_enable    | 0,1         | 0    | 6/6 | Indicate whether the adaptive recording is enabled                                       |
| adaptive_preevent  | 0~9         | 5    | 6/6 | Indicate when is the adaptive recording started before the event trigger point (seconds) |
| adaptive_postevent | 0~10        | 5    | 6/6 | Indicate when is the adaptive recording stopped after the event trigger point (seconds)  |

## 7.31 HTTPS

Group: **https** (capability.protocol.https > 0)

| NAME        | VALUE                       | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION  |
|-------------|-----------------------------|---------|-----------------------|--|
| enable      | <boolean>                   | 0       | 6/6                   | To enable or disable secure HTTP.  |
| policy      | <Boolean>                   | 0       | 6/6                   | If the value is 1, it will force HTTP connection redirect to HTTPS connection  |
| method      | auto,<br>manual,<br>install | auto    | 6/6                   | auto =>Create self-signed certificate automatically.<br>manual =>Create self-signed certificate manually.<br>install =>Create certificate request and install. |
| status      | -3 ~ 1                      | 0       | 6/6                   | Specify the https status.<br>-3= Certificate not installed<br>-2 = Invalid public key<br>-1 = Waiting for certificate<br>0= Not installed<br>1 = Active        |
| countryname | string[2]                   | TW      | 6/6                   | Country name in the certificate information.   |

|                     |             |                 |     |  |
|---------------------|-------------|-----------------|-----|--|
| stateorprovincename | string[128] | Asia            | 6/6 | State or province name in the certificate information.   |
| localityname        | string[128] | Asia            | 6/6 | The locality name in the certificate information.        |
| organizationname    | string[64]  | VIVOTEK Inc.    | 6/6 | Organization name in the certificate information.        |
| unit                | string[32]  | VIVOTEK Inc.    | 6/6 | Organizational unit name in the certificate information. |
| commonname          | string[64]  | www.vivotek.com | 6/6 | Common name in the certificate information.              |
| validdays           | 0 ~ 3650    | 3650            | 6/6 | Valid period for the certification.                      |

## 7.32 Storage management setting

Currently it's for local storage (SD, CF card)

Group: **disk\_i<0~(n-1)>n** is the total number of storage devices. (**capability.storage.dbenabled > 0**)

| PARAMETER           | VALUE                 | Default | SECURITY<br>(get/set) | DESCRIPTION  |
|---------------------|-----------------------|---------|-----------------------|--|
| cyclic_enabled      | <boolean>             | 0       | 6/6                   | Enable cyclic storage method.  |
| autocleanup_enabled | <boolean>             | 0       | 6/6                   | Enable automatic clean up method.<br>Expired and not locked media files will be deleted. |
| autocleanup_maxage  | <positive<br>integer> | 7       | 6/6                   | To specify the expired days for automatic clean up.                                      |

## 7.33 Region of interest

Group: **roi\_c<0~(n-1)>** for n channel product, and m is the number of streams which support ROI.

(**capability.eptz > 0**)

| PARAMETER       | VALUE         | Default                | SECURITY<br>(get/set) | DESCRIPTION   |
|-----------------|---------------|------------------------|-----------------------|---|
| s<0~(m-1)>_home | <coordinate>  | <product<br>dependent> | 1/6                   | ROI left-top corner coordinate.   |
| s<0~(m-1)>_size | <window size> | <product<br>dependent> | 1/6                   | ROI width and height. The width value must be multiples of 16 and the height value must be multiples of 8 |

## 7.34 ePTZ setting

Group: **eptz\_c<0~(n-1)>** for n channel product. (*capability.eptz > 0*)

| PARAMETER | VALUE     | Default | SECURITY<br>(get/set) | DESCRIPTION  |
|-----------|-----------|---------|-----------------------|--|
| osdzoom   | <boolean> | 1       | 1/4                   | Indicates multiple of zoom in is "on-screen display" or not                              |
| smooth    | <boolean> | 1       | 1/4                   | Enable the ePTZ "move smoothly" feature  |
| tiltspeed | -5 ~ 5    | 0       | 1/7                   | Tilt speed<br>(It should be set by eCamCtrl.cgi rather than by setparam.cgi.)            |
| panspeed  | -5 ~ 5    | 0       | 1/7                   | Pan speed<br>(It should be set by eCamCtrl.cgi rather than by setparam.cgi.)             |
| zoomspeed | -5 ~ 5    | 0       | 1/7                   | Zoom speed<br>(It should be set by eCamCtrl.cgi rather than by setparam.cgi.)            |
| autospeed | 1 ~ 5     | 1       | 1/7                   | Auto pan/patrol speed<br>(It should be set by eCamCtrl.cgi rather than by setparam.cgi.) |

Group: **eptz\_c<0~(n-1)>\_s<0~(m-1)>** for n channel product and m is the number of streams which support ePTZ. (*capability.eptz > 0*)

| PARAMETER           | VALUE         | Default | SECURITY<br>(get/set) | DESCRIPTION   |
|---------------------|---------------|---------|-----------------------|---|
| patrolseq           | string[120]   | <blank> | 1/4                   | The patrol sequence of ePTZ. All the patrol position indexes will be separated by ","                       |
| patroldwelling      | string[160]   | <blank> | 1/4                   | The dwelling time (unit: second) of each patrol point, separated by ",".                                    |
| preset_i<0~19>_name | string[40]    | <blank> | 1/7                   | Name of ePTZ preset.<br>(It should be set by ePreset.cgi rather than by setparam.cgi.)                      |
| preset_i<0~19>_pos  | <coordinate>  | <blank> | 1/7                   | Left-top corner coordinate of the preset.<br>(It should be set by ePreset.cgi rather than by setparam.cgi.) |
| preset_i<0~19>_size | <window size> | <blank> | 1/7                   | Width and height of the preset.<br>(It should be set by ePreset.cgi rather than by setparam.cgi.)           |

## 7.35 Focus Window setting

Group: **focuswindow\_c<0~(n-1)>** for n channel product.

| PARAMETER     | VALUE  | Default                                      | SECURITY<br>(get/set) | DESCRIPTION                               |
|---------------|--|--|-----------------------|---|
| win_i0_enable | <boolean>  | 0  | 4/4                   | Enable or disable the window.             |
| win_i0_home   | IP8365:<br>(0~1728,0~936)<br>IP8355:<br>(0~1088,0~880)           | IP8365:<br>(864,468)<br>IP8355:<br>(544,440) | 4/4                   | Left-top corner coordinate of the window. |
| win_i0_size   | IP8365:<br>(192~1920,144~1080)<br>IP8355:<br>(192~1280,144~1024) | (192x144)                                    | 4/4                   | Width and height of the window.           |

## 7.36 Exposure window setting per channel

Group: **exposurewin\_c<0~(n-1)>** for n channel products **<product dependent>**

(capability\_videoin\_supportexpwin = 1)

| NAME              | VALUE            | DEFAULT  | SECURITY<br>(get/set) | DESCRIPTION  |
|-------------------|------------------|----------|-----------------------|--|
| mode              | auto, custom,blc | auto     | 4/4                   | The mode indicates how to decide the exposure.<br>auto: Use full view as the only one exposure window.<br>custom: Use inclusive and exclusive window.<br>blc: Use BLC. |
| win_i<0~9>_enable | <boolean>        | 0        | 4/4                   | Enable or disable the window.  |
| win_i<0~9>_policy | 0~1              | 0        | 4/4                   | 0: Indicate exclusive.<br>1: Indicate inclusive.   |
| win_i<0~9>_home   | (0~320, 0~240)   | (110,80) | 4/4                   | Left-top corner coordinate of the window.  |
| win_i<0~9>_size   | (0~320, 0~240)   | (100x75) | 4/4                   | Width and height of the window.  |

Group: **exposurewin\_c<0~(n-1)>\_profile** for m profile and n channel product

(capability\_videoin\_supportexpwin = 1)

| NAME | VALUE | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION |
|------|-------|---------|-----------------------|-------------|
|------|-------|---------|-----------------------|-------------|

|                              |                  |          |     |  |
|------------------------------|------------------|----------|-----|--|
| i<0~(m-1)>_mode              | auto, custom,blc | auto     | 4/4 | The mode indicates how to decide the exposure.<br>auto: Use full view as the only one exposure window.<br>custom: Use inclusive and exclusive window.<br>blc: Use BLC. |
| i<0~(m-1)>_win_i<0~9>_enable | <boolean>        | 0        | 4/4 | Enable or disable the window.  |
| i<0~(m-1)>_win_i<0~9>_policy | 0~1              | 0        | 4/4 | 0: Indicate exclusive.<br>1: Indicate inclusive.   |
| i<0~(m-1)>_win_i<0~9>_home   | (0~320, 0~240)   | (110,80) | 4/4 | Left-top corner coordinate of the window.  |
| i<0~(m-1)>_win_i<0~9>_size   | (0~320, 0~240)   | (100x75) | 4/4 | Width and height of the window.  |

## 7.37 Seamless recording setting

Group: **seamlessrecording**(capability.localstorage.seamless> 0)

| PARAMETER        | VALUE                   | Default  | SECURITY<br>(get/set) | DESCRIPTION   |
|------------------|-------------------------|----------|-----------------------|---|
| diskmode         | seamless,<br>manageable | seamless | 1/6                   | "seamless" indicates enable seamless recording.<br>"manageable" indicates disable seamless recording. |
| maxconnection    | 3                       | 3        | 1/6                   | Maximum number of connected seamless streaming.   |
| stream           | 1~4                     | 1        | 1/6                   | (Internal used, read only)  |
| output           | 0~3                     | 2        | 1/6                   | (Internal used, read only)  |
| enable           | <boolean>               | 0        | 1/6                   | Indicate whether seamless recording is recording to local storage or not at present.<br>(Read only)   |
| guid<0~2>_id     | string[127]             | <blank>  | 1/6                   | The connected seamless streaming ID.<br>(Read only)   |
| guid<0~2>_number | 0~3                     | 0        | 1/6                   | Number of connected seamless streaming with guid<0~2>_id.<br>(Read only)                              |

## 7.38 VIVOTEK Application Development Platformsetting

Group: **vadp**

| NAME                   | VALUE      | DEFAULT             | SECURITY<br>(get/set) | DESCRIPTION   |
|------------------------|------------|---------------------|-----------------------|---|
| version                | <string>   | 1.1.0.0             | 6/7                   | Indicate the VADP version.  |
| resource_total_video   | <integer>  | 0                   | 6/7                   | Indicate total video resource number of the system.   |
| resource_total_audio   | <integer>  | 0                   | 6/7                   | Indicate total audio resource number of the system.   |
| resource_total_do      | <integer>  | 0                   | 6/7                   | Indicate total DO resource number of the system.  |
| resource_total_memory  | <integer>  | <product dependent> | 6/7                   | Indicate total available memory size for VADP modules.  |
| resource_total_storage | <integer>  | <product dependent> | 6/7                   | Indicate total size of the internal storage space for storing VADP modules.   |
| resource_free_video    | <integer>  | 0                   | 6/7                   | Indicate free video resource number of the system.  |
| resource_free_audio    | <integer>  | 0                   | 6/7                   | Indicate free audio resource number of the system.  |
| resource_free_do       | <integer>  | 0                   | 6/7                   | Indicate free DO resource number of the system.   |
| resource_free_memory   | <integer>  | <product dependent> | 6/7                   | Indicate free memory size for VADP modules.   |
| resource_free_storage  | <integer>  | <product dependent> | 6/7                   | Indicate current free storage size for uploading VADP modules.  |
| module_number          | <integer>  | 0                   | 6/7                   | Record the total module number that already stored in the system.   |
| module_order           | string[40] | <blank>             | 6/6                   | The execution order of the enabled modules.   |
| module_save2sd         | <boolean>  | <product dependent> | 6/6                   | Indicate if the module should be saved to SD card when user want to upload it.<br>If the value is false, save module to the internal storage space and it will occupy storage size. |

Group: vadv\_module\_j&lt;0~(n-1)&gt;

| NAME      | VALUE       | DEFAULT | SECURITY<br>(get/set) | DESCRIPTION   |
|-----------|-------------|---------|-----------------------|---|
| enable    | <boolean>   | 0       | 6/6                   | Indicate if the module is enabled or not.<br>If yes, also add the index of this module to the module_order. |
| name      | string[40]  | <blank> | 6/6                   | Module name   |
| url       | string[120] | <blank> | 6/6                   | Define the URL string after the IP address if the module provides it own web page.                          |
| vender    | string[40]  | <blank> | 6/6                   | The provider of the module.   |
| vendorurl | string[120] | <blank> | 6/6                   | URL of the vendor.  |
| version   | string[40]  | <blank> | 6/6                   | Version of the module.  |
| license   | string[40]  | <blank> | 6/6                   | Indicate the license status of the module.  |
| path      | string[40]  | <blank> | 6/6                   | Record the storage path of the module.  |
| initscr   | string[40]  | <blank> | 6/6                   | The script that will handle operation commands from the system.   |
| status    | string[40]  | <blank> | 6/6                   | Indicate the running status of the module.  |



## 8. Useful Functions

### Drive the Digital Output (**capability.ndo > 0**)

**Note:** This request requires Viewer privileges.

**Method:** GET/POST

Syntax:

```
http://<servername>/cgi-bin/dido/setdo.cgi?do1=<state>[&do2=<state>]
[&do3=<state>][&do4=<state>]
```

Where state is 0 or 1; "0" means inactive or normal state, while "1" means active or triggered state.

| PARAMETER | VALUE | DESCRIPTION                 |
|-----------|-------|-----------------------------|
| do<num>   | 0, 1  | 0 – Inactive, normal state  |
|           |       | 1 – Active, triggered state |

**Example:** Drive the digital output 1 to triggered state and redirect to an empty page.

```
http://myserver/cgi-bin/dido/setdo.cgi?do1=1
```

### Query Status of the Digital Input(**capability.ndi > 0**)

Note: This request requires Viewer privileges

**Method:** GET/POST

Syntax:

```
http://<servername>/cgi-bin/dido/getdi.cgi?[di0][&di1][&di2][&di3]
```

If no parameter is specified, all of the digital input statuses will be returned.

Return:

```
HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: <length>\r\n
\r\n
[di0=<state>]\r\n
[di1=<state>]\r\n
[di2=<state>]\r\n
[di3=<state>]\r\n
```

where <state> can be 0 or 1.

**Example:** Query the status of digital input 1 .

Request:

<http://myserver/cgi-bin/dido/getdi.cgi?di1>

Response:

```
HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: 7\r\n
\r\n
di1=1\r\n
```

## Query Status of the Digital Output (**capability.ndo > 0**)

**Note:** This request requires Viewer privileges

**Method:** GET/POST

Syntax:

```
http://<servername>/cgi-bin/dido/getdo.cgi?[do0][&do1][&do2][&do3]
```

If no parameter is specified, all the digital output statuses will be returned.

Return:

```
HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: <length>\r\n
\r\n
[do0=<state>]\r\n
[do1=<state>]\r\n
[do2=<state>]\r\n
[do3=<state>]\r\n
```

where *<state>* can be 0 or 1.

**Example:** Query the status of digital output 1.

Request:

<http://myserver/cgi-bin/dido/getdo.cgi?do1>

Response:

```
HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: 7\r\n
```

```
\r\n
do1=1\r\n
```

## Capture Single Snapshot

**Note:** This request requires Normal User privileges.

**Method:** GET/POST

Syntax:

```
http://<servername>/cgi-bin/viewer/video.jpg?[channel=<value>][&resolution=<value>]
[&quality=<value>][&streamid=<value>]
```

If the user requests a size larger than all stream settings on the server, this request will fail.

| PARAMETER  | VALUE  | DEFA<br>ULT | DESCRIPTION                             |
|------------|--|-------------|---|
| channel    | 0~(n-1)  | 0           | The channel number of the video source. |
| resolution | IP8365:<br>(160~640, 120~360)<br>IP8355:<br>(160~1280, 120~1024) | 0           | The resolution of the image.            |
| quality    | 1~5  | 3           | The quality of the image.               |
| streamid   | 0~(m-1)  | 2           | The stream number.                      |

The server will return the most up-to-date snapshot of the selected channel and stream in JPEG format. The size and quality of the image will be set according to the video settings on the server.

Return:

```
HTTP/1.0 200 OK\r\n
Content-Type: image/jpeg\r\n
[Content-Length: <image size>\r\n]

<binary JPEG image data>
```

## Account Management

**Note:** This request requires Administrator privileges.

**Method:** GET/POST

Syntax:

```
http://<servername>/cgi-bin/admin/editaccount.cgi?
method=<value>&username=<name>[&userpass=<value>][&privilege=<value>]
[&privilege=<value>][...][&return=<return page>]
```

| PARAMETER | VALUE         | DESCRIPTION   |
|-----------|---------------|---|
| method    | Add           | Add an account to the server. When using this method, the "username" field is necessary. It will use the default value of other fields if not specified.  |
|           | Delete        | Remove an account from the server. When using this method, the "username" field is necessary, and others are ignored.   |
|           | edit          | Modify the account password and privilege. When using this method, the "username" field is necessary, and other fields are optional. If not specified, it will keep the original settings.                                  |
| username  | <name>        | The name of the user to add, delete, or edit.   |
| userpass  | <value>       | The password of the new user to add or that of the old user to modify. The default value is an empty string.  |
| Privilege | <value>       | The privilege of the user to add or to modify.  |
|           | viewer        | Viewer privilege.   |
|           | operator      | Operator privilege.   |
|           | admin         | Administrator privilege.  |
| Return    | <return page> | Redirect to the page <return page> after the parameter is assigned. The <return page> can be a full URL path or relative path according to the current path. If you omit this parameter, it will redirect to an empty page. |

## System Logs

**Note:** This request require Administrator privileges.

**Method:** GET/POST

Syntax:

```
http://<servername>/cgi-bin/admin/syslog.cgi
```

Server will return the most up-to-date system log.

Return:

```
HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
```

```
Content-Length: <syslog length>\r\n
\r\n
<system log information>\r\n
```

## Upgrade Firmware

**Note:** This request requires Administrator privileges.

Method: POST

Syntax:

```
http://<servername>/cgi-bin/admin/upgrade.cgi
```

Post data:

```
fimage=<file name>[&return=<return page>]\r\n
\r\n
<multipart encoded form data>
```

Server will accept the file named <file name> to upgrade the firmware and return with <return page> if indicated.

## ePTZ Camera Control (capability.eptz > 0)

**Note:** This request requires camctrl privileges.

**Method:** GET/POST

Syntax:

```
http://<servername>/cgi-bin/camctrl/eCamCtrl.cgi?channel=<value>&stream=<value>
[&move=<value>] – Move home, up, down, left, right
[&auto=<value>] – Auto pan, patrol
[&zoom=<value>] – Zoom in, out
[&zooming=<value>&zs=<value>] – Zoom without stopping, used for joystick
[&vx=<value>&vy=<value>&vs=<value>] – Shift without stopping, used for joystick
[&x=<value>&y=<value>&videosize=<value>&resolution=<value>&stretch=<value>] – Click on image
(Move the center of image to the coordination (x,y) based on resolution or videosize.)
[ [&speedpan=<value>][&speedtilt=<value>][&speedzoom=<value>][&speedapp=<value>] ] – Set speeds
[&return=<return page>]
```

Example:

```
http://myserver/cgi-bin/camctrl/eCamCtrl.cgi?channel=0&stream=0&move=right
http://myserver/cgi-bin/camctrl/eCamCtrl.cgi?channel=0&stream=1&vx=2&vy=2&vz=2
http://myserver/cgi-bin/camctrl/eCamCtrl.cgi?channel=0&stream=1&x=100&y=100&
```

[videosize=640x480&resolution=640x480&stretch=0](#)

| PARAMETER  | VALUE         | DESCRIPTION   |
|------------|---------------|---|
| channel    | <0~(n-1)>     | Channel of video source.  |
| stream     | <0~(m-1)>     | Stream.   |
| move       | home          | Move to home ROI.   |
|            | up            | Move up.  |
|            | down          | Move down.  |
|            | left          | Move left.  |
|            | right         | Move right.   |
| auto       | pan           | Auto pan.   |
|            | patrol        | Auto patrol.  |
|            | stop          | Stop auto pan/patrol.   |
| zoom       | wide          | Zoom larger view with current speed.  |
|            | tele          | Zoom further with current speed.  |
| zooming    | wide or tele  | Zoom without stopping for larger view or further view with zs speed, used for joystick control.   |
| zs         | 0 ~ 6         | Set the speed of zooming, "0" means stop.   |
| vx         | <integer>     | The direction of movement, used for joystick control.   |
| vy         | <integer>     |   |
| vs         | 0 ~ 7         | Set the speed of movement, "0" means stop.  |
| x          | <integer>     | x-coordinate clicked by user.<br>It will be the x-coordinate of center after movement.  |
| y          | <integer>     | y-coordinate clicked by user.<br>It will be the y-coordinate of center after movement.  |
| videosize  | <window size> | The size of plug-in (ActiveX)window in web page   |
| resolution | <window size> | The resolution of streaming.  |
| stretch    | <boolean>     | 0 indicates that it uses <b>resolution</b> (streaming size) as the range of the coordinate system.<br>1 indicates that it uses <b>videosize</b> (plug-in size) as the range of the coordinate system. |
| speedpan   | -5 ~ 5        | Set the pan speed.  |
| speedtilt  | -5 ~ 5        | Set the tilt speed.   |

|           |               |   |
|-----------|---------------|---|
| speedzoom | -5 ~ 5        | Set the zoom speed.   |
| speedapp  | 1 ~ 5         | Set the auto pan/patrol speed.  |
| return    | <return page> | Redirect to the page <return page> after the parameter is assigned.<br>The <return page> can be a full URL path or relative path according to the current path. |

## ePTZ Recall (capability.eptz > 0)

**Note:** This request requires camctrl privileges.

Method: GET/POST

Syntax:

```
http://<servername>/cgi-bin/camctrl/eRecall.cgi?channel=<value>&stream=<value>&recall=<value>[&return=<return page>]
```

| PARAMETER | VALUE                               | DESCRIPTION   |
|-----------|-------------------------------------|---|
| channel   | <0~(n-1)>                           | Channel of the video source.  |
| stream    | <0~(m-1)>                           | Stream.   |
| recall    | Text string less than 40 characters | One of the present positions to recall.   |
| return    | <return page>                       | Redirect to the page <return page> after the parameter is assigned.<br>The <return page> can be a full URL path or relative path according to the current path. |

## ePTZ Preset Locations (capability.eptz > 0)

**Note:** This request requires Operator privileges.

**Method:** GET/POST

Syntax:

```
http://<servername>/cgi-bin/operator/ePreset.cgi?channel=<value>&stream=<value>[&addpos=<value>][&delpos=<value>][&return=<return page>]
```

| PARAMETER | VALUE     | DESCRIPTION                  |
|-----------|-----------|------------------------------|
| channel   | <0~(n-1)> | Channel of the video source. |
| stream    | <0~(m-1)> | Stream.                      |

|        |                                       |  |
|--------|---------------------------------------|--|
| addpos | <Text string less than 40 characters> | Add one preset location to the preset list.  |
| delpos | <Text string less than 40 characters> | Delete preset location from the preset list.   |
| return | <return page>                         | Redirect to the page <return page> after the parameter is assigned. The <return page> can be a full URL path or relative path according to the current path. |

## IP Filtering

**Note:** This request requires Administrator access privileges.

**Method:** GET/POST

Syntax: <product dependent>

| <pre>http://&lt;servername&gt;/cgi-bin/admin/ipfilter.cgi?type[=&lt;value&gt;] http://&lt;servername&gt;/cgi-bin/admin/ipfilter.cgi?method=add&lt;v4/v6&gt;&amp;ip=&lt;ipaddress&gt;[&amp;index=&lt;value&gt;][&amp;return=&lt;return page&gt;] http://&lt;servername&gt;/cgi-bin/admin/ipfilter.cgi?method=del&lt;v4/v6&gt;&amp;index=&lt;value&gt;[&amp;return=&lt;return page&gt;]</pre> |               |   |
|---|---------------|---|
| PARAMETER   | VALUE         | DESCRIPTION   |
| type  | NULL          | Get IP filter type  |
|   | allow, deny   | Set IP filter type  |
| method  | addv4         | Add IPv4 address into access list.  |
|   | addv6         | Add IPv6 address into access list.  |
|   | delv4         | Delete IPv4 address from access list.   |
|   | delv6         | Delete IPv6 address from access list.   |
| ip  | <IP address>  | Single address: <IP address><br>Network address: <IP address / network mask><br>Range address: <start IP address - end IP address>  |
| index   | <value>       | The start position to add or to delete.   |
| return  | <return page> | Redirect to the page <return page> after the parameter is assigned. The <return page> can be a full URL path or relative path according to the current path. If you omit this parameter, it will redirect to an empty page. |



## IP Filtering for ONVIF

Syntax: <product dependent>

http://<servername>/cgi-bin/admin/ipfilter.cgi?type[=<value>]

http://<servername>/cgi-bin/admin/ipfilter.cgi?method=add<v4/v6>&ip=<ipaddress>[&index=<value>][&return=<return page>]

http://<servername>/cgi-bin/admin/ipfilter.cgi?method=del<v4/v6>&index=<value>[&return=<return page>]

| PARAMETER | VALUE         | DESCRIPTION  |
|-----------|---------------|--|
| type      | NULL          | Get IP filter type   |
|           | allow, deny   | Set IP filter type   |
| method    | addv4         | Add IPv4 address into access list.   |
|           | addv6         | Add IPv6 address into access list.   |
|           | delv4         | Delete IPv4 address from access list.  |
|           | delv6         | Delete IPv6 address from access list.  |
| ip        | <IP address>  | Single address: <IP address><br>Network address: <IP address / network mask><br>Range address: <start IP address - end IP address>   |
| index     | <value>       | The start position to add or to delete.  |
| return    | <return page> | Redirect to the page <return page> after the parameter is assigned.<br>The <return page> can be a full URL path or relative path according to the current path. If you omit this parameter, it will redirect to an empty page. |

## Get SDP of Streams

**Note:** This request requires Viewer access privileges.

**Method:** GET/POST

Syntax:

```
http://<servername>/<network_rtsp_s<0~m-1>_accessname>
```

"m" is the stream number.

"network\_accessname\_<0~(m-1)>" is the accessname for stream "1" to stream "m". Please refer to the "subgroup of network: rtsp" for setting the accessname of SDP.

You can get the SDP by HTTP GET.

When using scalable multicast, Get SDP file which contains the multicast information via HTTP.

## Open the Network Stream

**Note:** This request requires Viewer access privileges.

Syntax:

For HTTP push server (MJPEG):

```
http://<servername>/<network_http_s<0~m-1>_accessname>
```

For RTSP (MP4), the user needs to input the URL below into an RTSP compatible player.

```
rtsp://<servername>/<network_rtsp_s<0~m-1>_accessname>
```

"m" is the stream number.

For details on streaming protocol, please refer to the "control signaling" and "data format" documents.

## Storage managements (capability.storage.dbenabled > 0)

**Note:** This request requires administrator privileges.

**Method:** GET and POST

Syntax:

```
http://<servername>/cgi-bin/admin/lctrl.cgi?cmd=<cmd_type>[&<parameter>=<value>...]
```

The commands usage and their input arguments are as follows.

| PARAMETER | VALUE    | DESCRIPTION |
|-----------|----------|-------------|
| cmd_type  | <string> | Required.   |

Command to be executed, including *search*, *insert*, *delete*, *update*, and *queryStatus*.

Command: **search**

| PARAMETER   | VALUE                 | DESCRIPTION   |
|-------------|-----------------------|---|
| label       | <integer primary key> | Optional.<br>The integer primary key column will automatically be assigned a unique integer.  |
| triggerType | <text>                | Optional.<br>Indicate the event trigger type.<br>Please embrace your input value with single quotes.<br>Ex. mediaType='motion'<br>Support trigger types are product dependent.  |
| mediaType   | <text>                | Optional.<br>Indicate the file media type.<br>Please embrace your input value with single quotes.<br>Ex. mediaType='videoclip'<br>Support trigger types are product dependent.  |
| destPath    | <text>                | Optional.<br>Indicate the file location in camera.<br>Please embrace your input value with single quotes.<br>Ex. destPath = '/mnt/auto/CF/NCMF/abc.mp4'   |
| resolution  | <text>                | Optional.<br>Indicate the media file resolution.<br>Please embrace your input value with single quotes.<br>Ex. resolution='800x600'   |
| isLocked    | <boolean>             | Optional.<br>Indicate if the file is locked or not.<br>0: file is not locked.<br>1: file is locked.<br>A locked file would not be removed from UI or cyclic storage.  |
| triggerTime | <text>                | Optional.<br>Indicate the event trigger time. (not the file created time)<br>Format is "YYYY-MM-DD HH:MM:SS"<br>Please embrace your input value with single quotes.<br>Ex. triggerTime='2008-01-01 00:00:00'<br>If you want to search for a time period, please apply "TO" operation.<br>Ex. triggerTime='2008-01-01 00:00:00'+TO+'2008-01-01 23:59:59' is to search for records from the start of Jan 1 <sup>st</sup> 2008to |

|        |                    |  |
|--------|--------------------|--|
|        |                    | the end of Jan 1 <sup>st</sup> 2008.   |
| limit  | <positive integer> | Optional.<br>Limit the maximum number of returned search records.  |
| offset | <positive integer> | Optional.<br>Specifies how many rows to skip at the beginning of the matched records.<br>Note that the offset keyword is used after limit keyword. |

To increase the flexibility of search command, you may use "OR" connectors for logical "OR" search operations. Moreover, to search for a specific time period, you can use "TO" connector.

Ex. To search records triggered by motion or di or sequential and also triggered between 2008-01-01 00:00:00 and 2008-01-01 23:59:59.

```
http://<servername>/cgi-bin/admin/lscrtl.cgi?cmd=search&triggerType='motion'+OR+'di'+OR+'seq'&triggerTime='2008-01-01 00:00:00'+TO+'2008-01-01 23:59:59'
```

Command: **delete**

| PARAMETER | VALUE                 | DESCRIPTION   |
|-----------|-----------------------|---|
| label     | <integer primary key> | Required.<br>Identify the designated record.<br>Ex. label=1 |

Ex. Delete records whose key numbers are 1, 4, and 8.

```
http://<servername>/cgi-bin/admin/lscrtl.cgi?cmd=delete&label=1&label=4&label=8
```

Command: **update**

| PARAMETER | VALUE                 | DESCRIPTION   |
|-----------|-----------------------|---|
| label     | <integer primary key> | Required.<br>Identify the designated record.<br>Ex. label=1 |
| isLocked  | <boolean>             | Required.<br>Indicate if the file is locked or not.         |

Ex. Update records whose key numbers are 1 and 5 to be locked status.

```
http://<servername>/cgi-bin/admin/lscrtl.cgi?cmd=update&isLocked=1&label=1&label=5
```

Ex. Update records whose key numbers are 2 and 3 to be unlocked status.

```
http://<servername>/cgi-bin/admin/lscrtl.cgi?cmd=update&isLocked=0&label=2&label=3
```

Command: queryStatus

| PARAMETER | VALUE             | DESCRIPTION  |
|-----------|-------------------|--|
| retType   | xml or javascript | Optional.<br>Ex. retype=javascript<br>The default return message is in XML format. |

Ex. Query local storage status and call for javascript format return message.

```
http://<servername>/cgi-bin/admin/lscrtl.cgi?cmd=queryStatus&retType=javascript
```

## Virtual input (capability.nvi > 0)

**Note:** Change virtual input (manual trigger) status.

Method: GET

Syntax:

```
http://<servername>/cgi-bin/admin/setvi.cgi?vi0=<value>[&vi1=<value>][&vi2=<value>]
[&return=<return page>]
```

| PARAMETER | VALUE   | DESCRIPTION   |
|-----------|---|---|
| vi<num>   | state[(duration)nstate]<br><br>Where "state" is 0, 1. "0" means inactive or normal state while "1" means active or triggered state.<br>Where "nstate" is next state after duration. | Ex: vi0=1<br>Setting virtual input 0 to trigger state<br><br>Ex: vi0=0(200)1<br>Setting virtual input 0 to normal state, waiting 200 <b>milliseconds</b> , setting it to trigger state.<br>Note that when the virtual input is waiting for next state, it cannot accept new requests. |
| return    | <return page>   | Redirect to the page <return page> after the request is completely assigned. The <return page> can be a full URL path or relative path according the current path. If you omit this parameter, it will redirect to an empty page.   |

| Return Code | Description   |
|-------------|---|
| 200         | The request is successfully executed.   |
| 400         | The request cannot be assigned, ex. incorrect parameters.<br>Examples:<br>setvi.cgi?vi0=0(10000)1(15000)0(20000)1<br>No multiple duration.<br>setvi.cgi?vi3=0 |

|     |  |
|-----|--|
|     | <p>VI index is out of range.</p> <p>setvi.cgi?vi=1</p> <p>No VI index is specified.</p>  |
| 503 | <p>The resource is unavailable, ex. Virtual input is waiting for next state.</p> <p>Examples:</p> <p>setvi.cgi?vi0=0(15000)1</p> <p>setvi.cgi?vi0=1</p> <p>Request 2 will not be accepted during the execution time(15 seconds).</p> |

## Open Timeshift Stream (capability.timeshift > 0, timeshift\_enable=1, timeshift\_c<n>\_s<m>\_allow=1)

**Note:** This request requires Viewer access privileges.

Syntax:

For HTTP push server (MJPEG):

```
http://<servername>/<network_http_s<m>_accessname>?maxsft=<value>[&tsmode=<value>&reftime=<value>&forcechk&minsft=<value>]
```

For RTSP (MP4 and H264), the user needs to input the URL below into an RTSP compatible player.

```
rtsp://<servername>/<network_rtsp_s<m>_accessname>?maxsft=<value>[&tsmode=<value>&reftime=<value>&forcechk&minsft=<value>]
```

“n” is the channel index.

“m” is the timeshift stream index.

For details on timeshift stream, please refer to the “TimeshiftCaching” documents.

| PARAMETER | VALUE              | DEFAULT                               | DESCRIPTION   |
|-----------|--------------------|---------------------------------------|---|
| maxsft    | <positive integer> | 0                                     | Request cached stream at most how many seconds ago.   |
| tsmode    | normal, adaptive   | normal                                | Streaming mode:<br>normal => Full FPS all the time.<br>adaptive => Default send only I-frame for MP4 and H.264, and send 1 FPS for MJPEG. If DI or motion window are triggered, the streaming is changed to send full FPS for 10 seconds.<br>(*Note: this parameter also works on non-timeshift streams.) |
| reftime   | mm:ss              | The time camera receives the request. | Reference time for maxsft and minsft.<br>(This provides more precise time control to eliminate the inaccuracy due to network latency.)  |

|          |                    |     |   |
|----------|--------------------|-----|---|
|          |                    |     | Ex: Request the streaming from 12:20<br>rtsp://10.0.0.1/live.sdp?maxsft=10&reftime=12:30  |
| forcechk | N/A                | N/A | Check if the requested stream enables timeshift, feature and if minsft is achievable.<br>If false, return "415 Unsupported Media Type". |
| minsft   | <positive integer> | 0   | How many seconds of cached stream client can accept at least.<br>(Used by forcechk)   |

| Return Code                | Description  |
|----------------------------|--|
| 400 Bad Request            | Request is rejected because some parameter values are illegal.   |
| 415 Unsupported Media Type | Returned, if forcechk appears, when minsft is not achievable or the timeshift feature of the target stream is not enabled. |

## Open Anystream (capability.nanystream > 0)

**Note:** This request requires Viewer access privileges.

Syntax:

For HTTP push server (MJPEG):

```
http://<servername>/videoany.mjpg?codectype=mjpeg[&resolution=<value>&mjpeg_quant=<value>&mjpeg_qvalue=<value>&mjpeg_maxframe=<value>]
```

For RTSP (MPEG4), the user needs to input the URL below into an RTSP compatible player.

```
rtsp://<servername>/liveany.sdp?codectype=mpeg4[&resolution=<value>&mpeg4_intraperiod=<value>&mpeg4_ratecontrolmode=<value>&mpeg4_quant=<value>&mpeg4_qvalue=<value>&mpeg4_bitrate=<value>&mpeg4_maxframe=<value>]
```

For RTSP (H264), the user needs to input the URL below into an RTSP compatible player.

```
rtsp://<servername>/liveany.sdp?codectype=h264[&resolution=<value>&h264_intraperiod=<value>&h264_ratecontrolmode=<value>&h264_quant=<value>&h264_qvalue=<value>&h264_bitrate=<value>&h264_maxframe=<value>]
```

<product dependent>

| PARAMETER | VALUE                         | DEFAULT  | DESCRIPTION                   |
|-----------|-------------------------------|----------|-------------------------------|
| codectype | mjpeg, mpeg4, h264            | N/A      | Set codec type for Anystream. |
| solution  | capability_videoin_resolution | <product | Video resolution in pixels.   |

|                       |                                     | dependent> |  |
|-----------------------|-------------------------------------|------------|--|
| mjpeg_quant           | 99, 1~5                             | 3          | Quality of JPEG video.<br>0,99 is the customized manual input setting.<br>1 = worst quality, 5 = best quality.   |
| mjpeg_qvalue          | 2~97                                | 50         | Manual video quality level input.<br>(This must be present if mjpeg_quant is equal to 0, 99)   |
| mjpeg_maxframe        | 1~30 (3M mode)<br>1~60 (2M mode)    | 30         | Set maximum frame rate in fps (for JPEG).  |
| mpeg4_intraperiod     | 250, 500, 1000, 2000, 3000,<br>4000 | 1000       | Intra frame period in milliseconds.  |
| mpeg4_ratecontrolmode | cbr, vbr                            | Cbr        | cbr: constant bitrate<br>vbr: fix quality  |
| mpeg4_quant           | 99, 1~5                             | 3          | Quality of video when choosing vbr in "mpeg4_ratecontrolmode".<br>0,99 is the customized manual input setting.<br>1 = worst quality, 5 = best quality. |
| mpeg4_qvalue          | 2~31                                | 7          | Manual video quality level input.<br>(This must be present if mpeg4_quant is equal to 0, 99)<br><product dependent>                                    |
| mpeg4_bitrate         | 4~32000000                          | 8000000    | Set bit rate in bps when choosing cbr in "mpeg4_ratecontrolmode".  |
| mpeg4_maxframe        | 1~30 (3M mode)<br>1~60 (2M mode)    | 30<br>60   | Set maximum frame rate in fps (for MPEG-4).  |
| h264_intraperiod      | 250, 500, 1000, 2000, 3000,<br>4000 | 1000       | Intra frame period in milliseconds.  |
| h264_ratecontrolmode  | cbr, vbr                            | vbr        | cbr: constant bitrate<br>vbr: fix quality  |
| h264_quant            | 99, 1~5                             | 3          | Quality of video when choosing vbr in "h264_ratecontrolmode".<br>0,99 is the customized manual input setting.<br>1 = worst quality, 5 = best quality.  |



|               |                                  |          |   |
|---------------|----------------------------------|----------|---|
| h264_qvalue   | 0~51                             | 30       | Manual video quality level input.<br>(This must be present if h264_quant is equal to 0, 99) |
| h264_bitrate  | 20~32000000                      | 8000000  | Set bit rate in bps when choosing cbr in "h264_ratecontrolmode".                            |
| h264_maxframe | 1~30 (3M mode)<br>1~60 (2M mode) | 30<br>60 | Set maximum frame rate in fps (for H264).   |

## Remote Focus

**Note:** This request requires Administrator privileges.

**Method:** GET/POST

Syntax:

```
http://<servername>/cgi-bin/admin/remotefocus.cgi?function=<value> [&direction=<value>]
[&position=<value>] [&steps=<value>] [&iris]
```

| PARAMETER | VALUE  | DESCRIPTION  |
|-----------|--|--|
| function  | zoom,<br>focus,<br>auto,<br>scan,<br>stop,<br>positioning<br>getstatus | Function type<br>zoom – Move zoom motor<br>focus – Move focus motor<br>auto – Perform auto focus<br>scan – Perform focus scan<br>stop – Stop current operation<br>positioning – Position the motors<br>getstatus–Information of motors, return value as below:<br>remote_focus_focus_motor_max: Maximum steps of focus motor<br>remote_focus_zoom_motor_max: Maximum steps of zoom motor<br>remote_focus_focus_motor_start: Start point of effective focal length<br>remote_focus_focus_motor_end: End point of effective focal length<br>remote_focus_focus_motor: Current position of focus motor<br>remote_focus_zoom_motor: Current position of zoom motor<br>remote_focus_focus_enable: Current function of focus motor<br>remote_focus_zoom_enable: Current function of zoom motor<br>remote_focus_value_mode: Source of focus value. 0: ISP, 1: Edge. |

|           |                                 |  |
|-----------|---------------------------------|--|
| direction | direct,<br>forward,<br>backward | Motor's moving direction.<br>It works only if function=zoom   focus.   |
| position  | 0~<motor_max>                   | Motor's position.<br>It works only if function=zoom   focus and direction=direct.<br><motor_max> is refer to remote_focus_focus_motor_max or remote_focus_zoom_motor_max which replied from "function=getstatus"                 |
| steps     | 1 ~ <motor_max>                 | Motor's moving steps.<br>It works only if function=zoom   focus and direction=forward   backward.<br><motor_max> is refer to remote_focus_focus_motor_max or remote_focus_zoom_motor_max which replied from "function=getstatus" |
| iris      | N/A                             | Open iris or not.<br>It works only if function=auto   scan.  |

## Export Files

**Note:** This request requires Administrator privileges.

Method: GET

Syntax:

For daylight saving time configuration file:

`http://<servername>/cgi-bin/admin/exportDst.cgi`

For language file:

`http://<servername>/cgi-bin/admin/export_language.cgi?currentlanguage=<value>`

| PARAMETER       | VALUE | DESCRIPTION  |
|-----------------|-------|--|
| currentlanguage | 0~20  | Available language lists.<br>Please refer to:<br>system_info_language_i0 ~ system_info_language_i19. |

For setting backup file:

`http://<servername>/cgi-bin/admin/export_backup.cgi?backup`

## Upload Files

**Note:** This request requires Administrator privileges.

Method: POST

Syntax:

For daylight saving time configuration file:

```
http://<servername>/cgi-bin/admin/upload_dst.cgi
```

Post data:

```
filename = <file name>\r\n
\r\n
<multipart encoded form data>
```

For language file:

```
http://<servername>/cgi-bin/admin/upload_lan.cgi
```

Post data:

```
filename = <file name>\r\n
\r\n
<multipart encoded form data>
```

For setting backup file:

```
http://<servername>/cgi-bin/admin/upload_backup.cgi
```

Post data:

```
filename = <file name>\r\n
\r\n
<multipart encoded form data>
```

Server will accept the file named <file name> to upload this one to camera.

# Technical Specifications

| Technical Specifications    |   |
|-----------------------------|---|
| <b>Model</b>                | IP8355EH  |
| <b>System Information</b>   |   |
| CPU                         | Multimedia SoC (System-on-Chip)   |
| Flash                       | 256 MB  |
| RAM                         | 384MB   |
| <b>Camera Features</b>      |   |
| Image Sensor                | 1/3" Progressive CMOS   |
| Maximum Resolution          | 1280x1024 (1.3MP)   |
| Lens Type                   | Vari-focal, Remote Focus  |
| Focal Length                | f = 3 ~ 9 mm  |
| Aperture                    | F1.2 ~ F2.3   |
| Auto-iris                   | P-iris  |
| Field of View               | 34° ~ 80° (Horizontal)<br>27° ~ 62° (Vertical)<br>44° ~ 101° (Diagonal)   |
| Shutter Time                | 1/5 sec. to 1/10,000 sec.   |
| WDR Technology              | WDR Pro II  |
| Day/Night                   | Removable IR-cut filter for day & night function<br>Smart IR Technology to avoid overexposure   |
| Minimum Illumination        | 0.07 Lux @ F1.2, 50 IRE (Color)<br>0.001 Lux @ F1.2, 50 IRE (B/W)   |
| Pan/tilt/zoom               | ePTZ:   |
| Functionalities             | 48x digital zoom (4x on IE plug-in, 12x built in)   |
| IR Illuminators             | Built-in IR illuminators, effective up to 30 meters<br>IR LED*4, with Smart IR Technology   |
| On-board Storage            | SD/SDHC/SDXC card slot  |
| <b>Video</b>                |   |
| Compression                 | H.264, MJPEG  |
| Maximum Frame Rate          | 30 fps @ 1280x1024<br>In both compression modes   |
| Maximum Streams             | 2 simultaneous streams  |
| S/N Ratio                   | 64db  |
| Dynamic Range               | 140dB   |
| Video Streaming             | Adjustable resolution, quality and bitrate  |
| Image Settings              | Time stamp, text overlay, flip & mirror<br>configurable brightness, contrast, saturation, sharpness,<br>white balance, exposure control, gain, backlight<br>compensation, privacy masks, scheduled profile<br>settings, 3D Noise Reduction, EIS |
| <b>Audio</b>                |   |
| Audio Capability            | Two-way audio (full duplex)   |
| Compression                 | AAC, G.711, G.726   |
| Interface                   | External microphone input<br>Audio output   |
| <b>Network</b>              |   |
| Users                       | Live viewing for up to 10 clients   |
| Protocols                   | IPv4, IPv6, TCP/IP, HTTP, HTTPS, UPnP,<br>RTSP/RTMP/RTCP, IGMP, SMTP, FTP, DHCP, NTP,<br>DNS, DDNS, PPPoE, CoS, QoS, SNMP, 802.1X, UDP,<br>ICMP   |
| Interface                   | 10Base-T/100 BaseTX Ethernet (RJ-45)  |
| ONVIF                       | Supported, specification available at <a href="http://www.onvif.org">www.onvif.org</a>  |
| <b>Intelligent Video</b>    |   |
| Video Motion Detection      | Triple-window video motion detection  |
| <b>Alarm and Event</b>      |   |
| Alarm Triggers              | Video motion detection, manual trigger, digital input,<br>periodical trigger, system boot, recording notification,<br>camera tampering detection  |
| Alarm Events                | Event notification using digital output, HTTP, SMTP,<br>FTP and NAS server<br>File upload via HTTP, SMTP, FTP and NAS server  |
| <b>General</b>              |   |
| Smart Focus System          | Remote focus  |
| Connectors                  | RJ-45 for Network/PoE connection<br>Audio input/output<br>AV output<br>AC 24V power input<br>DC 12V power input<br>Digital input*1<br>Digital output*1  |
| LED Indicator               | System power and status indicator   |
| Power Input                 | DC12V/AC24V<br>IEEE 802.3af PoE   |
| Power Consumption           | DC Max30W (Heater on) 8W (Heater off)<br>AC Max. 30W (Heater on) 8.8W (Heater off)<br>PoE Max. 11W  |
| Dimensions                  | Ø: 85mm x 219mm   |
| Weight                      | Net: 1,314g (Body only)<br>Net: 1,911g (with stand and sunshield)   |
| Casing                      | Weather-proof IP67-rated housing  |
| Safety Certifications       | CE, LVD, FCC Class A, VCCI, C-Tick, UL  |
| Operating Temperature       | Starting Temperature: -40°C ~ 50°C (-40°F ~ 122°F)<br>(PoE: -10°C ~ 50°C)<br>Working Temperature: -50°C ~ 50°C (-58°F ~ 122°F)  |
| Warranty                    | 24 months   |
| <b>System Requirements</b>  |   |
| Operating System            | Microsoft Windows 8/7/Vista/XP/2000   |
| Web Browser                 | Mozilla Firefox 7~10 (streaming only)<br>Internet Explorer 7/8/9/10   |
| Other Players               | VLC: 1.1.11 or above<br>Quicktime: 7 or above   |
| <b>Included Accessories</b> |   |
| CD                          | User's manual, quick installation guide, Installation<br>Wizard 2, ST7501 32-channel recording software   |
| Others                      | Quick installation guide, warranty card, sun shield, wall<br>mount bracket, waterproof RJ45 Ethernet enclosure,<br>alignment sticker, desiccant bag, waterproof connector   |
| <b>Dimensions</b>           |   |
|                             |   |

## Compatible Accessories

|   |   |   |
|---|---|---|
| <b>Mounting Kits</b><br> <b>AM-311</b><br>Pole Mount Adaptor |  <b>AM-411</b><br>Corner Mount Adaptor | <b>PoE Kits</b><br> <b>POE-IJ-1748NDN</b><br>PoE injector, 802.3af compliant |
|---|---|---|

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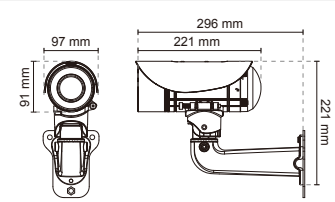
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Ver 1.6

**Technical Specifications**

|                             |  |  |   |
|-----------------------------|--|--|---|
| <b>Model</b>                | IP8365EH   | <b>Intelligent Video</b>   |   |
| <b>System Information</b>   |  | <b>Video Motion Detection</b>  | Triple-window video motion detection  |
| <b>CPU</b>                  | Multimedia SoC (System-on-Chip)  | <b>Alarm and Event</b>   |   |
| <b>Flash</b>                | 256 MB   | <b>Alarm Triggers</b>  | Video motion detection, manual trigger, digital input, periodical trigger, system boot, recording notification, camera tampering detection                          |
| <b>RAM</b>                  | 384MB  | <b>Alarm Events</b>  | Event notification using digital output, HTTP, SMTP, FTP and NAS server<br>File upload via HTTP, SMTP, FTP and NAS server   |
| <b>Camera Features</b>      |  | <b>General</b>   |   |
| <b>Image Sensor</b>         | 1/2.8" Progressive CMOS  | <b>Smart Focus System</b>  | Remote focus  |
| <b>Maximum Resolution</b>   | 1920x1080 (2MP)  | <b>Connectors</b>  | RJ-45 for Network/PoE connection<br>Audio input/output<br>AV output<br>AC 24V power input<br>DC 12V power input<br>Digital input*1<br>Digital output*1              |
| <b>Lens Type</b>            | Vari-focal, Remote Focus   | <b>LED Indicator</b>   | System power and status indicator   |
| <b>Focal Length</b>         | f = 3 ~ 9 mm   | <b>Power Input</b>   | DC12V/AC24V<br>IEEE 802.3af PoE   |
| <b>Aperture</b>             | F1.2 ~ F2.3  | <b>Power Consumption</b>   | DC Max.30W (Heater on) 8W (Heater off)<br>AC Max. 30W (Heater on) 8.8W (Heater off)<br>PoE Max. 11W   |
| <b>Auto-iris</b>            | P-Iris   | <b>Dimensions</b>  | Ø: 85mm x 219mm   |
| <b>Field of View</b>        | 39° ~ 89° (Horizontal)<br>22° ~ 49° (Vertical)<br>44° ~ 103° (Diagonal)  | <b>Weight</b>  | Net: 1,314g (Body only)<br>Net: 1,911g (with stand and sunshield)   |
| <b>Shutter Time</b>         | 1/5 sec. to 1/10,000 sec.  | <b>Casing</b>  | Weather-proof IP67-rated housing  |
| <b>WDR Technology</b>       | WDR Pro  | <b>Safety Certifications</b>   | CE, LVD, FCC Class A, VCCI, C-Tick, UL  |
| <b>Day/Night</b>            | Removable IR-cut filter for day & night function<br>Smart IR Technology to avoid overexposure  | <b>Operating Temperature</b>   | Starting Temperature: -40°C ~ 50°C (-40°F ~ 122°F)<br>(PoE: -10°C ~ 50°C)<br>Working Temperature: -50°C ~ 50°C (-58°F ~ 122°F)                                      |
| <b>Minimum Illumination</b> | 0.39 Lux @ F1.2, 50 IRE (Color)<br>0.001 Lux @ F1.2, 50 IRE (B/W)  | <b>Warranty</b>  | 24 months   |
| <b>Pan/tilt/zoom</b>        | ePTZ:  | <b>System Requirements</b>   |   |
| <b>Functionalities</b>      | 48x digital zoom (4x on IE plug-in, 12x built in)  | <b>Operating System</b>  | Microsoft Windows 8/7/Vista/XP/2000   |
| <b>IR Illuminators</b>      | Built-in IR illuminators, effective up to 30 meters<br>IR LED*4, with Smart IR Technology  | <b>Web Browser</b>   | Mozilla Firefox 7~10 (streaming only)<br>Internet Explorer 7/8/9/10   |
| <b>On-board Storage</b>     | SD/SDHC/SDXC card slot   | <b>Other Players</b>   | VLC: 1.1.11 or above<br>Quicktime: 7 or above   |
| <b>Video</b>                |  | <b>Included Accessories</b>  |   |
| <b>Compression</b>          | H.264, MJPEG   | <b>CD</b>  | User's manual, quick installation guide, Installation Wizard 2, ST7501 32-channel recording software  |
| <b>Maximum Frame Rate</b>   | 30 fps @ 1920x1080<br>In both compression modes  | <b>Others</b>  | Quick installation guide, warranty card, sun shield, wall mount bracket, waterproof RJ45 Ethernet enclosure, alignment sticker, desiccant bag, waterproof connector |
| <b>Maximum Streams</b>      | 2 simultaneous streams   | <b>Dimensions</b>  |   |
| <b>S/N Ratio</b>            | 62db   |  |   |
| <b>Dynamic Range</b>        | 100dB  |  |   |
| <b>Video Streaming</b>      | Adjustable resolution, quality and bitrate   |  |   |
| <b>Image Settings</b>       | Time stamp, text overlay, flip & mirror<br>configurable brightness, contrast, saturation, sharpness, white balance, exposure control, gain, backlight compensation, privacy masks, scheduled profile settings, 3D Noise Reduction, EIS |  |   |
| <b>Audio</b>                |  |  |   |
| <b>Audio Capability</b>     | Two-way audio (full duplex)  |  |   |
| <b>Compression</b>          | AAC, G.711, G.726  |  |   |
| <b>Interface</b>            | External microphone input<br>Audio output  |  |   |
| <b>Network</b>              |  |  |   |
| <b>Users</b>                | Live viewing for up to 10 clients  |  |   |
| <b>Protocols</b>            | IPv4, IPv6, TCP/IP, HTTP, HTTPS, UPnP, RTSP/RTP/RTCP, IGMP, SMTP, FTP, DHCP, NTP, DNS, DDNS, PPPoE, CoS, QoS, SNMP, 802.1X, UDP, ICMP  |  |   |
| <b>Interface</b>            | 10Base-T/100 BaseTX Ethernet (RJ-45)   |  |   |
| <b>ONVIF</b>                | Supported, specification available at www.onvif.org  |  |   |

**Compatible Accessories**

|   |                                     |   |  |
|---|-------------------------------------|---|--|
| <b>Mounting Kits</b>  |                                     | <b>PoE Kits</b>   |  |
|  | <b>AM-311</b><br>Pole Mount Adaptor |  | <b>AM-411</b><br>Corner Mount Adaptor                    |
|   |                                     |  | <b>POE-IJ-1748NDN</b><br>PoE injector, 802.3af compliant |

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Ver 1.6

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## Electromagnetic Compatibility (EMC)

### FCC Statement

This device complies with FCC Rules Part 15. Operation is subject to the following two conditions.

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a partial installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with emission limits.

### CE Mark Warning

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

### VCCI Warning

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